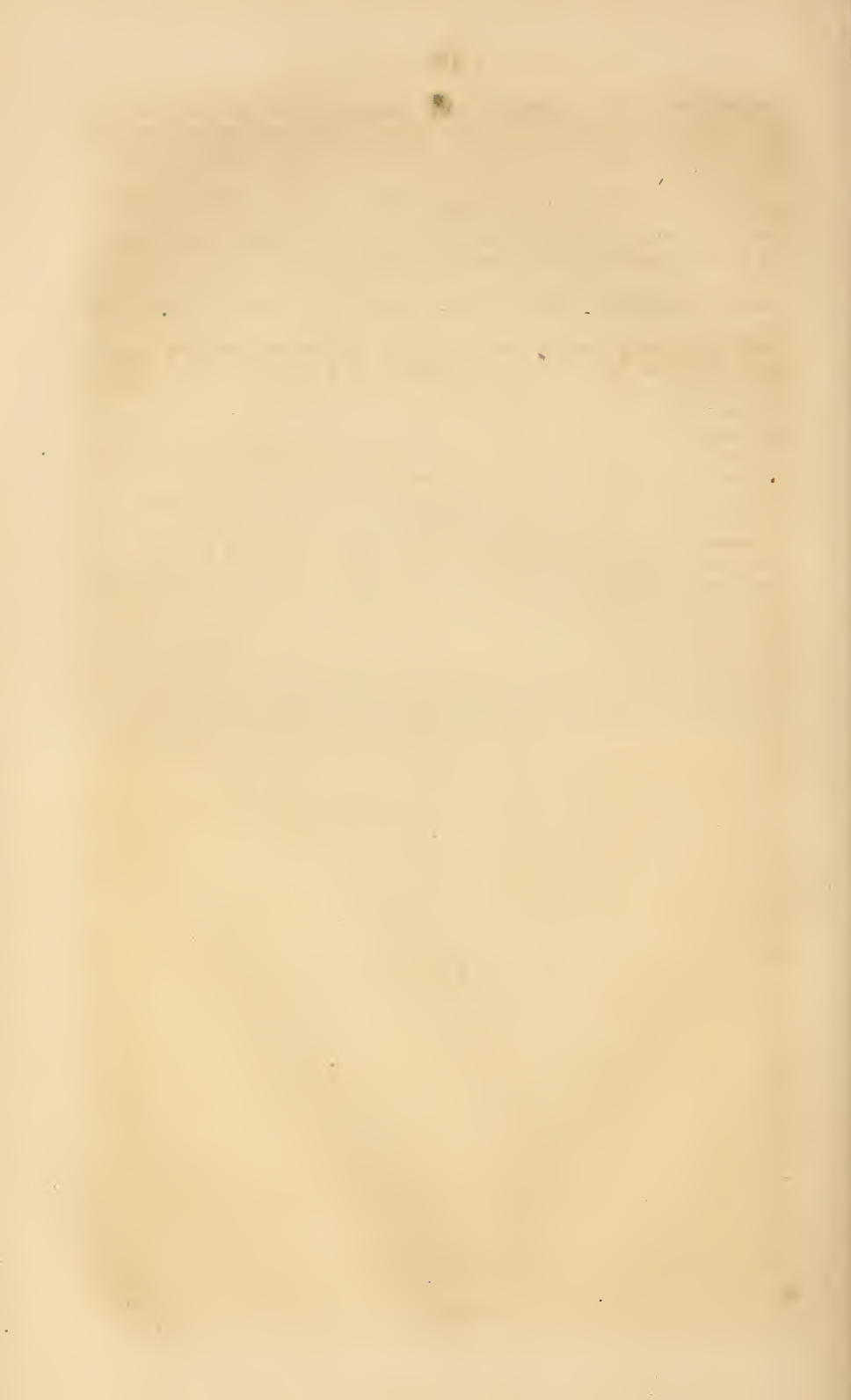


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MONTHLY REPORT

OF

THE DEPARTMENT OF AGRICULTURE,

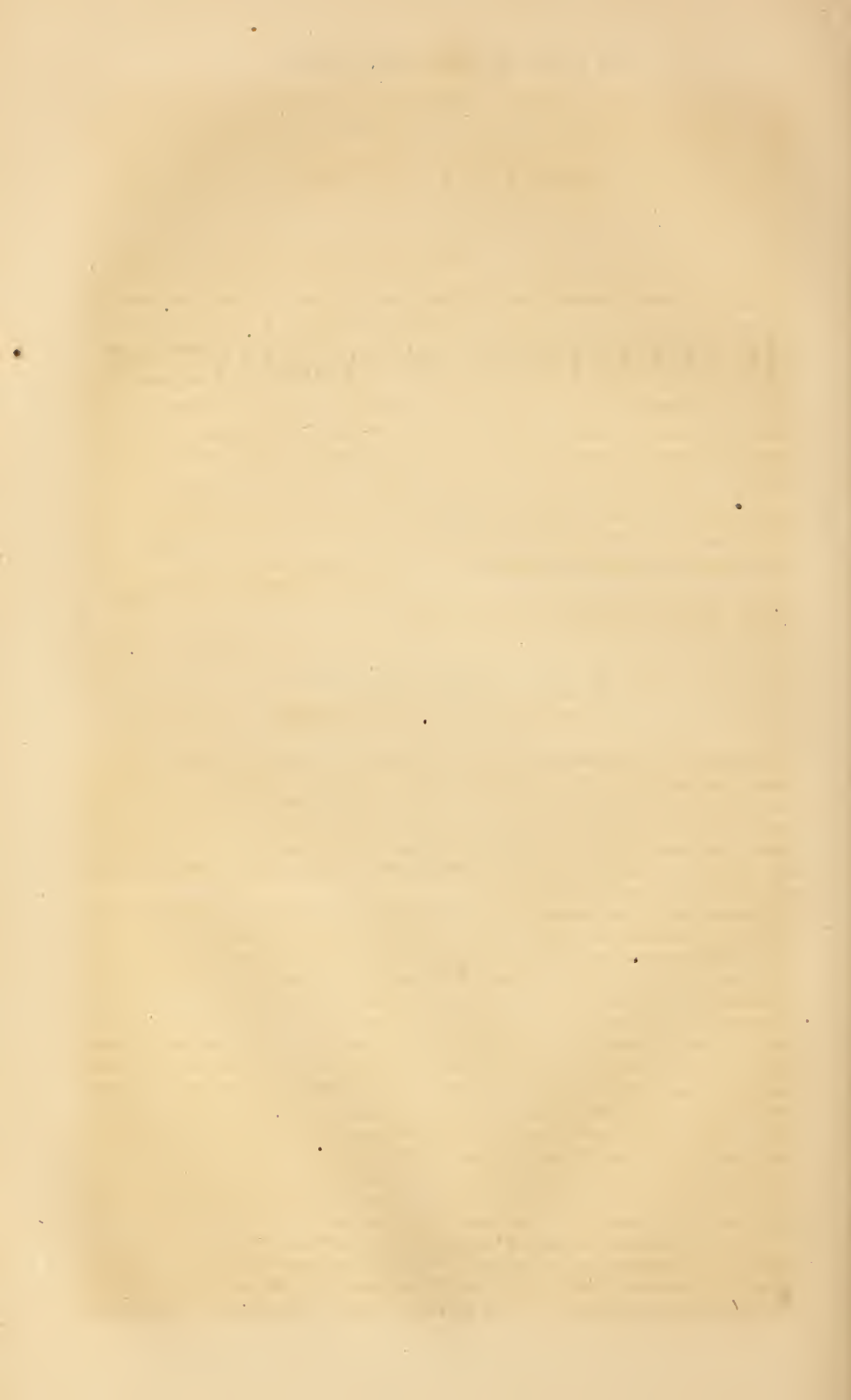
FOR

MAY AND JUNE

1869.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1869.



MONTHLY REPORT.

WASHINGTON, D. C., *June 19, 1869.*

SIR: I herewith submit for publication the report of this division for the months of May and June, including a condensed statement of the condition of the growing crops, and articles upon Steam Plowing in New Jersey and in Louisiana; Fruit Culture on the Mississippi Rapids; Progress of Nebraska; Value of Sewage Deposits; Land Drainage in California; Wheat Culture in Virginia; Ixtle Fiber; the Esparto Grass; the Belgian Exposition of Agriculture and Forestry; Flax and Hemp in Russia; Agricultural Exports; Live Stock at Chicago; British Wheat Imports and British Wool Exports; together with Meteorological Tables and Notes on the Weather for the months of April and May, and a variety of extracts from the correspondence of the Department.

J. R. DODGE, *Statistician.*

HON. HORACE CAPRON, *Commissioner.*

CONDITION OF THE CROPS.

The season has been somewhat peculiar; the mean temperature has been comparatively low, deluging rains frequent, hailstorms in unusual frequency and severity; frosts have been more destructive in the south than in the north, the cold and backward spring delaying bud development and flowering in the higher latitudes, and assuring a more abundant supply of fruits in the northern half of the country, with an unusual deficiency in the southern.

A result of these meteorological conditions is almost everywhere seen in the replanting of corn, cotton, and other spring-planted crops, to a very remarkable extent, causing hindrance and obstruction in the work of the season, which was already delayed by the austerity and unseasonableness of the weather. The difficulties are great, but, in view of the perseverance and activity of our husbandmen, and the general dissemination of improved agricultural implements, not insurmountable. The spirit with which the repair of the damages has been entered upon has been indomitable, and the result of such efforts marvellous. Disasters which might naturally prove dispiriting have only stimulated activity. While these facts tend to discouragement, every day's advance in the season diminishes the cause of despondency, and obliterates the marks of the season's untowardness. A general increase having been essayed in acreage under cultivation, a good harvest will depend alone upon untiring efforts of labor and propitious seasons in the future.

Wheat.—The season has been generally well suited to the growth of small grains, throughout a wider geographical range than usual, and in more of the circumstances favoring successful production. Severe summer heats, in this climate, are apt to follow abruptly upon cool spring weather, and

develop rust, or enfeeble the plant at the critical period of its existence when its highest vigor is necessary to the production of a plump and perfect grain. This spring a cooler temperature in May and June has favored health and growth of wheat in latitudes south of 40°, and rust has been less prevalent than usual, and the promise greater of a satisfactory yield.

The returns show a high average condition of wheat, and indicate a good prospect of an abundant crop, if no casualties occur before or after harvest. It should be observed, however, that the size and succulence of the stalk favors "lodging" or "laying," which is reported as already somewhat serious in parts of the south and west.

Early in the season complaints were general of unthriftiness and backwardness, which in some cases were not remedied altogether by after-growth, but in most localities the plant became stout and healthy, though generally later in heading than usual. Very little winter-killing has been reported, the snow covering the ground with greater uniformity and more permanence than usual. In Tennessee the prospect is particularly good; in California better than last year if possible; in the great wheat-growing States of the west the growth has been vigorous in most places, quite too luxuriant in fact, and to some extent damaged in consequence.

Rust is reported in a few counties in North Carolina and other southern States, and in Kentucky, Missouri, and to a slight extent in Illinois and the Ohio valley. In Alexander county, Illinois, complaint is made that the lower portion of the head is not filled, the imperfection being attributed to wet and chilly weather. In a considerable portion of Indiana damage has been sustained by floods upon level and low lands. Grasshoppers have been destructive in Utah, and to some extent in other regions west of the Mississippi.

Accumulating evidence might be presented of the utility and economy of drilling and thorough cultivation, as also of the profit of fertilizing, particularly in badly managed, neglected, and worn-out lands. The proof is all upon one side, admitting neither doubt nor discussion.

Effort has been made to obtain reliable information concerning acreage. The result shows a gratifying increase, amounting to about six per cent., or more than the advance in population. The Department estimate of acreage in wheat in 1868 exceeded 18,000,000 of acres; the returns of correspondents indicate an aggregate increase of more than 1,000,000 acres in California, Iowa, Minnesota, and elsewhere. Full returns from the Pacific have not been received, but the following estimates of increase are warranted by a careful analysis of returns:

	Acres.		Acres.
Iowa.....	224,000	Indiana.....	130,000
Minnesota.....	145,000	Tennessee.....	130,000
Ohio.....	140,000	Missouri.....	96,000

A considerable increase has also been made in Pennsylvania, Virginia, West Virginia, Michigan, and other States. No increase can be shown either in New York, Illinois, or Wisconsin, among the larger States. A decrease is apparent in South Carolina, Louisiana, and Texas. In Illinois a small increase in winter wheat is balanced by a reduction of the spring wheat acreage.

Other grains.—Rye, barley, and other grains, are generally in fine condition. The largest increase is in barley, and in the States west of the Mississippi, particularly in California, while a slight enlargement of area is reported in the Ohio valley, in New York, and elsewhere. Oats in the Ohio valley have scarcely been sown to the usual extent, but a

greater area has been put in elsewhere in the west, as in Michigan, Wisconsin, Iowa, Missouri, and Kansas. The crop is not quite in average condition in some parts of New England, and in parts of Ohio, Indiana, Illinois, and Minnesota, while in the more southern States the low temperature of the spring months has effected a decided improvement in a crop that generally suffers in those latitudes by sudden and extreme elevation of temperature at the season of heading.

Corn.—Planting has been everywhere retarded, either by excessive rain or cold, and partial replanting has been an inevitable necessity, at some points to the extent of one-fourth the area, in some cases one-third or one-half, and in Wood county, Ohio, two-thirds of the acreage. At the date of reports planting was in progress, in many cases not half finished, and nowhere completed north of the Ohio river. Latest returns represent the crop as backward; in some instances feeble, but generally green and vigorous, with a promise, a favorable season intervening, of a fair yield. The extent of area planted has been limited by the supply of labor and the necessity for replanting; a statement giving approximate estimates of it will be issued in July.

Cotton.—The high prices of 1868 have stimulated the business of cotton-growing; new operators have flocked into it, old plantations have enlarged their boundaries, and the indications are, unless Providence interferes to prevent the injury which will result from a large crop at the present time, that prices will decline; when an increase of 25 per cent. in bales will yield no increase in dollars, and the profits of the culture, as of yore, will be absorbed in the purchase of corn and bacon which should be grown and cured at home. Complaints of late planting, bad stands, cold and unfavorable weather, are more or less general throughout the cotton States; yet it will prove a very bad year for the plant if the product of last year shall not be attained. It is not too late, with good weather and exemption from insects, to obtain a yield of 3,000,000 of bales, which is quite as much as the markets of Europe and America require at present, in addition to the growths of other cotton fields; a larger yield will be sure to reduce materially the price obtained. The actual increase in acreage planted will be calculated for the July report.

From the Atlantic States, from North Carolina to Florida, discouraging accounts are general. The plant is yellow and sickly; there is a poor stand; replanting has been done or corn put in instead. Latest reports are more favorable; good weather is producing a wonderful change in the prospect; in many cases "a few hot days have made a great improvement." A few reports from Florida and Arkansas show that insects are appearing to some extent. See "Notes on the Growing Crops" for more particular accounts of cotton planting.

Other crops.—Sorghum will be cultivated more extensively than for many years, for sirup mainly, but in some places with the intention of attempting sugar-making. Hops are generally looking well. In Richland, Crawford, Columbia, and Waushara counties, Wisconsin, yards have been ploughed up, as well as in Montcalm, Livingston, and Calhoun, in Michigan, and in Minnesota and elsewhere; yet the prospect is good for an ample supply of the market. Particulars concerning a variety of other crops may be found in the tables of comparative acreage and condition, and in extracts from reports.

Fruits.—The yield of small fruits is unusually abundant, with a fine promise for those coming in later in the season. Peaches will be abundant in New Jersey and Delaware. There will be a fair crop in the west, and a short supply only in some localities in the southern States, where untimely frosts prevailed.

Table showing the condition of the crops, &c., on the 1st day of June, 1869:

STATES.	Winter wheat.		Winter rye.		Winter barley.		Spring wheat.		Spring barley.	
	Acreage compared with last year.	Average condition June 1st.	Acreage compared with last year.	Average condition June 1st.	Acreage compared with last year.	Average condition June 1st.	Acreage sown this spring compared with last.	Average condition June 1st.	Acreage sown this spring compared with last.	Average condition June 1st.
Maine	10	10	9.8	10	.....	.....	9.9	10.6	10.7	10.5
New Hampshire ...	9.8	10.9	9.5	10.8	.....	.....	10.3	10.7	9.8	10.6
Vermont	10	10.4	10.6	10.2	.....	.....	10.8	10.1	10	9.7
Massachusetts	9.6	11.8	10.1	10.1	10	10	10	10.6	10	10.7
Rhode Island .....	.....	.....	10	10.3	.....	.....	.....	.....	9.3	10.3
Connecticut	10	10	10.5	9.5	.....	.....	10	10	10	10
New York	10.3	9.6	9.7	9.5	10.2	10	9.5	9.9	10.7	10
New Jersey	10.4	10.7	10.1	9.8	.....	.....	.....	.....	.....	.....
Pennsylvania	10.5	11	9.9	9.6	9.7	10.3	9.3	9.3	10	9.6
Delaware	11.5	11.5	15	11	.....	.....	.....	.....	.....	.....
Maryland	10.3	11.2	9.8	10	.....	.....	.....	.....	.....	.....
Virginia	11	12	9.5	10.6	9	11.7	.....	.....	.....	.....
North Carolina	10.3	12	9	10.1	.....	.....	.....	.....	.....	.....
South Carolina	9.7	10	9.3	10.1	8.7	10	.....	.....	.....	.....
Georgia	10.2	11.3	9.7	10	9.6	10	.....	.....	.....	.....
Florida .....	.....	.....	9	10.2	.....	.....	.....	.....	.....	.....
Alabama	10.1	10.9	9.6	10	9.7	10	.....	.....	.....	.....
Mississippi	10.1	10.5	10	10.6	10	10.8	.....	.....	.....	.....
Louisiana	11	7.5	10.5	7.5	.....	.....	.....	.....	.....	.....
Texas	8.2	12	11.3	11.3	8.3	10.2	12.3	9.8	.....	.....
Arkansas	11.2	10.4	10	9.7	.....	.....	.....	.....	.....	.....
Tennessee	11.5	11	9.5	11.4	9.9	12.2	9.5	11.8	10.2	12
West Virginia	11.5	12.8	11.6	10.6	8.2	10.7	10.3	10.5	9.2	10
Kentucky	10.5	12.6	10.8	10.5	11.8	10.2	10.1	9.6	9	9.2
Missouri	13	10.3	10.6	10.2	10.7	10.3	11.5	11	11.2	10.9
Illinois	10.8	11	10.4	10.9	10.2	10.7	9.3	10.2	10.9	10.4
Indiana	11	11.7	9.7	10.9	9.9	10.8	9.5	10.1	11.4	10.3
Ohio	11.2	11.6	9.7	10.8	9.7	10.7	9.2	10.2	10	9.8
Michigan	10.6	10.7	10.4	10.3	9.8	9.9	10	10	10.4	9.9
Wisconsin	9.1	10.7	10.5	10.5	10	10.4	9.7	10.4	10.9	10.3
Minnesota	10.3	11.1	10.7	10.5	.....	.....	11.8	10.1	13.7	9.9
Iowa	10.4	10	10.1	10.7	13.5	12.6	11.6	11.1	12	10.6
Kansas	13	11.5	10.9	10.8	10.7	9.7	16.1	11.9	18.8	10.3
Nebraska	11.6	10	.....	.....	.....	.....	13	11	12.5	10.7

Condition of the crops, &c.—Continued.

STATES.	Oats.		Clover.		Spring pasture.	Maple sugar and molasses.		Sheep.	
	Acreage compared with last year.	Average condition June 1st.	Acreage compared with last year.	Average condition June 1st.	Average condition June 1st.	Amount of sugar made this year compared with last.	Amount of molasses made this year compared with last.	How many <i>hundreds</i> of the total number of sheep have been lost by disease or other casualty.	How many <i>hundreds</i> of the total number of lambs dropped this spring have died.
Maine	10.2	10.6	9.7	9.8	10	8.6	8.9	.09	.17
New Hampshire	10.3	10.5	10.6	11.3	10	9	9.6	.13	.15
Vermont	10.1	9.8	10.1	10.9	10.4	8.3	8.5	.09	.17
Massachusetts	9.4	11	10.5	11	10.8	10.3	9.6	.08	.10
Rhode Island	10	10.3	10	10.3	10.6	.....	.....	.05	.09
Connecticut	10.5	10.5	10.5	9.5	9.7	8.5	8.5	.05	.09
New York	10	10.2	9.9	10	10.3	10.6	10.2	.06	.09
New Jersey	10.2	10.1	9.6	8.9	8.9	.....	.....	.04	.06
Pennsylvania	10.5	9.8	10.2	9.6	10	10.8	10.5	.06	.10
Delaware	10	11	11	10	9.5	.....	.....	.03	.08
Maryland	10	9.7	9.9	10.5	10.9	.....	.....	.04	.07
Virginia	10.6	9.7	11.4	11.2	10.9	9	9.4	.09	.09
North Carolina	10.5	9.4	13	10.3	9.8	10.5	10.2	.09	.10
South Carolina	9.5	9.8	12.3	9.5	10.3	.....	.....	.12	.08
Georgia	10.5	10.3	13	10.4	10.3	.....	.....	.11	.09
Florida	9.7	10.4	.....	.....	10	.....	.....	.06	.06
Alabama	10.1	9.4	11.2	10.1	9.5	.....	.....	.10	.09
Mississippi	10.3	11.1	13.6	11.2	10.8	.....	.....	.09	.11
Louisiana	12	10	.....	.....	10.6	.....	.....	.06	.07
Texas	9.6	10.2	.....	.....	11.4	.....	.....	.07	.13
Arkansas	11	10.1	12	11.8	10.5	.....	.....	.10	.10
Tennessee	9.7	9.4	13	10.9	11.1	9.9	10	.09	.13
West Virginia	14.9	9.9	14.8	10.9	10.7	15.4	15.3	.09	.11
Kentucky	10.4	9	10.3	10.2	10.4	9.7	9.4	.05	.08
Missouri	11	10.4	11	11.2	11.5	9	13.8	.06	.12
Illinois	10.1	10.2	8.6	10.9	11.3	9.7	9.8	.08	.10
Indiana	9.7	9.9	10.5	11.3	11.1	9.9	10.2	.06	.14
Ohio	10.1	9.8	9.8	10.8	10.9	8.5	8.5	.10	.14
Michigan	10.9	9.9	10.7	10.6	10.7	12.4	11.5	.05	.09
Wisconsin	11.3	10.2	11	10.7	11	10.6	10	.06	.12
Minnesota	12.3	9.9	9.8	10	10.3	10.2	10.1	.06	.10
Iowa	11.6	10.8	10.9	10.7	11.1	9.4	9.6	.08	.15
Kansas	13.8	10.9	10.9	11.5	11.6	9.6	9.3	.06	.13
Nebraska	13.1	11.3	10	12	11.1	.....	.....	.04	.04

Condition of the crops, &c.—Continued.

STATES.	Wool.		Cows and calves.		Apples.		Peaches.		Pears.	
	How many hundredths of last year's wool clip still remain in the country.	Date of annual shearing in the county.	Average condition of cows this spring.	Number of calves dropped compared with average of former years.	Average amount of bloom this spring.	Average condition of the crop June 1st.	Average amount of bloom this spring.	Average condition of the crop June 1st.	Average amount of bloom this spring.	Average condition of the crop June 1st.
Maine .....	.04	.....	9.8	9.6	9.2	10.1	.....	.....	11.2	10.2
New Hampshire ..	.03	.....	8.8	9.6	8.3	9.4	9	9	10.2	10.2
Vermont .....	.15	.....	9.6	9.8	10	9.7	.....	.....	10.3	10.6
Massachusetts .....	.12	.....	10.6	10.7	6.3	8.5	10.6	8.6	8.8	9
Rhode Island .....	.28	.....	10.6	9.6	8.3	9	10	10	11.6	10
Connecticut .....	.14	.....	10.5	10.5	6.2	8.5	14.2	14	9.2	10.5
New York .....	.08	.....	10	10.3	9.9	9.7	11.1	10.4	10.7	10.1
New Jersey .....	.01	.....	10.3	10.1	9	9.8	11	13.3	9.6	9.5
Pennsylvania .....	.05	.....	10	10.2	11.6	11.2	13.3	11.9	12.9	10.9
Delaware .....	.00	.....	10.5	9	12	14.5	14.5	17.5	13.5	13.5
Maryland .....	.07	.....	10.4	9.8	11.4	11.6	10.5	9.7	11.4	11.3
Virginia .....	.04	.....	10.7	10.1	12.5	10.9	10.5	9.3	11.4	9.1
North Carolina .....	.09	.....	10.9	10	9.4	6.5	9.6	3.3	9.2	3.9
South Carolina .....	.05	.....	10.8	10.2	9.7	7	9.1	4.5	8.3	5.8
Georgia .....	.05	.....	10.2	10.3	9.4	7.8	10.7	6	9.2	6.5
Florida .....	.12	.....	9.4	9.8	.....	.....	11.3	8.5	.....	.....
Alabama .....	.09	.....	10	10.3	8.6	7.3	9	4.6	8.3	4.7
Mississippi .....	.08	.....	10.8	10.3	12.5	12.4	8.3	7.5	8	7.3
Louisiana .....	.18	.....	10	9.5	9.5	9	9	5.8	9.2	8.3
Texas .....	.04	.....	10.8	9.7	10.3	9.5	10.1	8.5	10	10.3
Arkansas .....	.12	.....	11.3	11.3	9.4	8.5	7.3	6.8	8	7.4
Tennessee .....	.10	.....	10.8	10.5	8	6.9	8.9	4.8	8.6	5.8
West Virginia .....	.03	.....	10.2	10.4	13	12.5	13	12.5	12.5	12
Kentucky .....	.07	.....	11.2	10.3	11.2	10.3	11.7	10	11.2	10.2
Missouri .....	.08	.....	10.5	10.5	12.6	11.3	5.9	7.4	10.9	10.5
Illinois .....	.03	.....	10.5	9.8	12.7	11.3	7.6	8.4	11.9	10.8
Indiana .....	.02	.....	10.7	11.7	13	12.7	10.7	10.7	11.6	11.7
Ohio .....	.04	.....	10.5	10.1	11.9	11.8	14	14.2	13.2	12.5
Michigan .....	.05	.....	10.5	10.7	11.9	11.5	16.8	13.7	13.2	11.7
Wisconsin .....	.08	.....	9.7	10.2	14.7	11.9	.....	.....	12.1	11.8
Minnesota .....	.09	.....	10.4	11.5	13.1	11.4	.....	.....	.....	.....
Iowa .....	.06	.....	10.6	11	12.3	11.9	10.5	10.6	12.2	11.8
Kansas .....	.11	.....	10.7	12.4	16	13	5.2	7.4	16.5	12.1
Nebraska .....	.03	.....	11	11.1	9.7	9.3	8.8	10.5	.....	.....

NOTES ON GROWING CROPS.

Sagadahoc county, Maine.—The season is rather backward, and a large portion of the grain, especially rye, was put in last week; the area planted and sown is greater than for some years.

Cumberland county, Maine.—The cultivation of sweet corn for canning purposes is taking the place in a measure of other cultivated crops, several thousand acres having been planted this spring.

Piscataquis county, Maine.—The season fully 10 days earlier than in 1868 or 1867, and wheat and barley promise 20 per cent. better than last year at the same date.

Orleans county, Vt.—Hops are raised to some extent in this county. Some seasons there have been sold \$20,000 to \$30,000 worth from a single town; but in consequence of loss by winter-killing and the damage by insects, the crop has fallen off 50 to 60 per cent.

Berkshire county, Mass.—May has been abundantly wet, so that grass and grain prospects are good, the grain looking very well.

Suffolk county, N. Y.—Winter grains that looked badly in the early spring have pushed forward under favorable weather, and now appear in average condition, though the stand is not quite as thick as usual.

Steuben county, N. Y.—The spring opened cold and backward, very unfavorable for corn, but favorable to winter grains, which now look extremely well.

Livingston county, N. Y.—The worms have destroyed much spring grain. Some farmers are preparing to sow buckwheat in large quantities where oats and wheat have been destroyed. Grass looks well, except in a few old fields where the worms have been at work.

Madison county, N. Y.—Hops are looking well. Skunks are active and numerous; they enter hen coops and chickens disappear, but the animal is considered a benefit in the hop yard in digging worms out of the hills.

Genesee county, N. Y.—Hops are looking finely this season.

Dutchess county, N. Y.—Hops are in average condition.

Monroe county, N. Y.—Winter wheat much killed by cold spring and water on the surface. Underdrained lands much better than other lands.

Essex county, N. Y.—All crops are fine in this county.

Gloucester county, N. J.—Grass indicates a very light crop, perhaps not more than half as great as last year.

Camden county, N. J.—The grasshoppers destroyed so much of the cultivated grasses, that in driving 40 to 50 miles in this county we rarely see a field that will cut the average amount of hay, and a great many may be seen that will not yield one-fourth the usual crop.

Burlington county, N. J.—All crops are now growing rapidly, and if the present rate is continued will soon exceed an average.

Chester county, Pa.—Oats being so poor last year, much corn-stalk ground was sown in wheat, and this spring an increase of potatoes has been planted in place of oats.

Franklin county, Pa.—All crops look promising except grass and clover, which need sun and heat.

Fulton county, Pa.—While there could be no better prospect for straw, if the present wet weather continues any length of time it must injure seriously much of the heavy forward wheat, a great deal of which is down now; the prospect for a heavy crop is not flattering.

Tioga county, Pa.—Winter wheat and grass promise heavy crops.

Dauphin county, Pa.—Corn is suffering from the ravages of the wire worm; bugs are unusually destructive on melon and tomato vines, &c.

Lancaster county, Pa.—Wheat, rye, and oats look promising; timothy well set; clover mostly frozen out; corn coming up regular; more potatoes planted than usual; great preparation made for tobacco crop, plants scarce and late.

Lebanon county, Pa.—Grain crops are remarkably promising. Grass is backward. One-third of last year's crop of wheat and corn is still held by the farmers in this county, amounting in value to \$500,000 to \$600,000.

Armstrong county, Pa.—Never saw wheat looking better in this county; acreage larger than usual.

Lawrence county, Pa.—Corn is backward, and the cut-worm has been very destructive on spring crops.

Adams county, Pa.—Winter crops look very well, and farmers are looking for an abundant harvest.

New Castle county, Del.—Thirty per cent. increase in wheat acreage as compared with last year; oats not as good as wheat, but improving. Pasture below average.

Prince George's county, Md.—Potato culture on the increase—both sweet and white; 15,000 bushels will probably be the crop of sweet potatoes in the county.

Baltimore county, Md.—Vegetables are made a specialty in this county for the city market.

Cecil county, Md.—The oat crop has been so poor for two or three years past that some farmers sowed wheat on their corn stubble last fall.

Queen Anne county, Md.—Corn backward but rapidly improving.

Howard county, Md.—Oats are unusually backward; crops will be light, except on good land.

Bedford county, Va.—Wheat promising; oats materially injured by rains and cold winds.

Nelson county, Va.—Wheat prospect flattering, promising 12 to 15 per cent. above usual crop; oats not promising.

Roanoke county, Va.—Corn coming up badly and looking yellow; wheat heading later than usual. Some farmers are planting their tobacco lands in corn on account of the fly.

Buckingham county, Va.—The acreage of our tobacco crop has been reduced about one-half, and the cool weather has belated the young plants; beans, peas, broom corn, and particularly sorghum, are taking the place of tobacco.

Cumberland county, Va.—There will be three-tenths less acreage in tobacco this year than last. The young plants were considerably damaged last spring by the fly, hence they will be set out later this season.

Smyth county, Va.—Large area planted in corn. It came up badly, much requiring replanting, but the prospect is now fair.

Albermarle county, Va.—A fair stand of tobacco plants, and a prospect of more than an average of plants put in.

Spottsylvania county, Va.—Wheat in promising condition; oats backward; one-fourth more corn planted this year than last season and ground better prepared.

Gloucester county, Va.—More sorghum planted this spring than since 1865, owing to the enhanced price of sugar and molasses.

Princess Anne county, Va.—Corn is more promising than at any time within five years.

Beaufort county, N. C.—Area in corn about the same as last year, and though small, the stand is better than last spring. The cotton acreage is about 10 per cent. greater than last year, but the plants have been almost destroyed by the cold and frost in May.

Camden county, N. C.—The farmers of this county have increased the

acreage in white potatoes fully 75 per cent., and the crop is looking finely. The growing of market vegetables has also been commenced.

Duplin county, N. C.—Corn and cotton injured by the frosts of April and May.

Edgecombe county, N. C.—Area in crops 20 per cent. greater than last year, and the prospect for crops was never worse; corn is backward and cotton still dying.

Iredell county, N. C.—Wheat looking better than for 10 years.

Lincoln county, N. C.—Best prospect for wheat we have had for years; no appearance of rust. The spring has been very unfavorable for cotton, it being almost impossible to get a good stand.

Rowan county, N. C.—There is from five to ten times more area in cotton this year than last, and not so much corn as last year. Fertilizers but little applied, but much needed.

Sampson county, N. C.—Cotton has suffered very much; our farmers are now replanting, with poor prospect for a stand; the first planting has almost all been plowed up and reseeded.

Stokes county, N. C.—Wheat generally looking well, but there is some rust in places.

Harnett county, N. C.—Cotton greatly damaged; in some cases it is an entire failure thus far; corn not an average; oats poor.

Pasquotank county, N. C.—The wheat crop promises better than in any year since 1864; corn looks well but is backward; cotton is almost a failure, caused by the cold in May.

Mecklenburg county, N. C.—If no accidents befall our crops we shall harvest double if not three times the quantity of wheat raised last year. Cotton never looked so badly; not half a stand, and what is left looks yellow and sickly; many are plowing up their cotton and planting corn. The crop will be the smallest here for 20 years.

Anson county, N. C.—Corn looking fine; but cotton looks badly, from the long, cold spring. The stand is bad.

Yadkin county, N. C.—Wheat promises better than for several years past.

Wake county, N. C.—Cotton has a bad stand; a great deal has been replanted, but it will be late; hardly possible to make more than two-thirds of a crop.

Stanly county, N. C.—Almost everybody goes in for making cotton this year, and almost everybody looks gloomy over the prospect. Nearly all the seed dropped in April had to be replanted; many, listening to the suggestions in the agricultural reports, give greater distance to the plants, a great number planted in checks, manuring in the hill. Thick planting, however, has been so prevalent through this section, that the contrary method will be attempted with a sparing and timid hand even by those willing to make the experiment. Too many stalks will be left in the hills.

Martin county, N. C.—Cotton is very much behind the season; the first planting nearly all dying out.

Chester county, S. C.—Cotton seriously damaged by cold and damp weather; not over six-tenths of a stand; acreage increased, probably, four-tenths. Acreage in corn diminished three-tenths, but will be increased by planters plowing up land planted in cotton.

Orangeburg county, S. C.—Twenty per cent. increase in acreage, but the same per cent. decline in condition of cotton.

York county, S. C.—Cotton much injured by frost; much has been replanted; corn small and backward; stand generally good.

Newberry county, S. C.—Not more than one-fourth of a full crop of cot-

ton can be made even with a favorable fall season. Corn backward and stand bad.

Barnwell county, S. C.—Cotton backward; injured by cold weather and heavy rains; stand poor; many fields replanted twice; corn acreage less by one-tenth to two-tenths, but the stand is better than last year, with more manure and better cultivation.

Georgetown county, S. C.—Rice is the specialty in this county. Bad stands from first planting, and considerable had to be cut and replanted. Acreage greater than last year; crop small and of bad color, requiring hot, dry weather to bring it up to an average standard.

Richland county, S. C.—Cotton acreage increased 50 per cent., but owing to backward spring the condition is 25 per cent. below that of 1867. Large amounts of fertilizers have been used, which we trust will bring the crop up wonderfully yet. So far about three-fourths of a stand has been obtained.

Spartanburg county, S. C.—Planters generally say that they have not more than half a stand of cotton; some of them not so much.

Williamsburg county, S. C.—The prospect for the rice crop is very unpromising; the spring has been so dry that many farmers have failed to get it up.

Bartow county, Ga.—Unfavorable prospect for cotton; plants very small; stands poor, and still dying. Indications of a very short crop in this section. An average planted, with more fertilizers than ever before, and better cultivation.

Bibb county, Ga.—Ten per cent. increase in acreage of cotton, but the stands have been seriously injured by excessive wet and cold weather. Corn looks well, and the stands good.

Columbia county, Ga.—Coldest and latest spring for 20 years. Only three-fourths of a stand of cotton on light lands, and not much better on the red lands. Corn small, with bad stand. Impossible to make a full crop of either.

Carroll county, Ga.—Cotton looks bad; dying out; bad stand. Corn never more backward.

Clarke county, Ga.—Cotton as good as could be wished. Corn looking well.

Glynn county, Ga.—Cotton small and yellow, with poor stand. Corn has suffered much from cut-worm. The stand is bad. Rice, the principal crop of the county, is backward, but the stand is better by 10 per cent. than last year. Acreage increased about five per cent. Prospect of crop better than last year.

McIntosh county, Ga.—Cotton is promising so far; average with last year.

Warren county, Ga.—Cotton is unusually small, and so much of it has been killed that there is not half a stand. Farmers are much discouraged, but a few weeks of warm weather with occasional showers would work a wonderful change.

Whitfield county, Ga.—Wheat finer than for several years; 100 per cent. over last season. Oats and clover, an average.

Forsyth county, Ga.—Wheat promises an abundant yield; 100 per cent. better than last year, with 20 per cent. greater breadth sown. Cotton prospect very poor; double the acreage planted, but the cold wet weather has killed it out. There is a very poor stand. Some experiments with clover promise a fair yield on manured lands.

Cobb county, Ga.—Wheat much better than for five years past. The crop will be double that of last year if harvested without casualty. Corn backward. Cotton worse than usual, as it did not come up well,

and much died. Attention has been given to clover and the grasses with success.

Coweta county, Ga.—Cotton and corn backward 10 to 15 days. Stand of corn generally good. Some complaint of the stand of cotton, but some fields are a perfect stand.

Clayton county, Ga.—The late cold spring caused a very bad stand of cotton. Some have replanted with cotton, others with corn, and some with peas.

Decatur county, Ga.—Corn less acreage than last year; backward, but otherwise promising. Cotton acreage greater than last year, but the plants are backward. A considerable amount of fertilizers has been applied. Sugar-cane, much of the stubble killed; this will be left for seed.

Jackson county, Ga.—Cotton poor; no stand; much plowed up and corn planted.

Liberty county, Ga.—Cotton acreage increased 50 per cent., perhaps more, but the condition of the crop is unfavorable. Large crops of rice planted; 100 per cent. greater than last season; condition good.

Newton county, Ga.—Thirty per cent. greater acreage in cotton, but condition 20 per cent. below last year, same date. Large increase in amount of fertilizers used.

Polk county, Ga.—A large proportion of the cotton planted died from the cold weather, and the land has been planted in corn.

Butts county, Ga.—Wheat promises double the yield of last year.

Brooks county, Ga.—Cotton looking well; clean and growing. Acreage about the same as last year, but the quantity of fertilizers used is greater than in any preceding year. Corn acreage less than last year. Oat crop large and good.

Baldwin county, Ga.—Wheat has rusted in the southern parts of the county.

Cherokee county, Ga.—Cotton small, sickly, and late.

Early county, Ga.—Wheat seems generally to have rusted. Season very bad for cotton thus far.

Franklin county, Ga.—Wheat promises better than for several years. Corn a fine stand and looks well. Cotton never looked worse.

Fulton county, Ga.—Corn up, with a good stand, especially where it was mixed with tar and then rolled in ashes or lime to keep from sticking. One-fourth of the cotton plowed up and planted in corn. Cotton is backward, but notwithstanding the amount plowed up there is yet as much planted as in previous years.

Hall county, Ga.—In 1866 I sowed the first field in clover sown in this county. It proved a success, growing 5 feet 10 inches high, and having 20 blossoms on a stalk. This year a great many farmers have sown clover, and have good stands. The Tappahannock wheat promises a large yield.

Macon county, Ga.—Acreage in cotton 20 per cent. above last year, but the condition is much below.

Pulaski county, Ga.—Cotton is very backward for the season, but an average crop may yet be made with favorable weather. Sugar-cane is in good condition.

Putnam county, Ga.—Acreage in cotton about 20 per cent. above last year; condition 20 per cent. below, having been killed to that extent by cold.

Sumter county, Ga.—Up to 25th May cotton looked very badly, but a few hot days since have made a very great improvement in it. Corn is small, but doing well.

Walton county, Ga.—Cotton has received much attention, guano being used freely. The cool weather has caused it to remain small, and much has died out.

Bradford county, Fla.—Corn, cotton, potatoes, sugar-cane, and rice, in poor condition, caused by the cool, wet weather. Cotton has a sickly appearance. Season said to be the most backward known in Florida.

Levy county, Fla.—Cotton and corn very backward. Cotton worm reported all over the county, but not much damage done yet. Lice and other insects are numerous on all cotton. Dry weather is injuring corn very much, as it is tasseling. Sugar badly injured by the cold last winter, and is not looking well now.

Leon county, Fla.—Cotton and corn are not doing as well as usual at this season, owing to the unusually cold spring.

Nassau county, Fla.—Cotton badly hurt by cold and drought. Corn and potatoes look well. Tappahannock wheat looked well in the early spring, but is utterly destroyed by rust.

Manatee county, Fla.—There was very little cane seed to plant, the ice of Christmas and the severe frost of March killing most of the seed cane.

Liberty county, Fla.—The sugar crop of this county is remarkably backward, with bad stands.

Conceh county, Ala.—Sugar-cane doing well, with one-fourth more planted. Most planters think cotton in worse condition than for several years. Corn looks well.

Greene county, Ala.—Cotton backward; poor stand. Corn promising, but neglected for the cotton crop.

Hale county, Ala.—Cotton, bad stand, very backward. Farmers discouraged, but a good season hereafter may make a good crop. Acreage in cotton and corn about the same as last year. Labor scarce. Freedmen working better than at any time since the close of the war.

Marengo county, Ala.—The stand of cotton is generally pretty good, but the plant is stunted by unseasonable weather. The crop is very unpromising, but a fair crop may yet be made. In the low ground the stand of corn is poor, and the whole crop is backward.

Perry county, Ala.—Cotton and corn late, and in bad condition.

Clay county, Ala.—Cotton poor; prospect never more gloomy.

Clarke county, Ala.—Cotton very small, and, so far, unpromising.

Dallas county, Ala.—Cotton, 20 per cent. increase in acreage; 30 per cent. decline in condition. Corn, an average with last year.

Marshall county, Ala.—The young cotton has died out until there is not much more than half a stand.

Chambers county, Ala.—Wheat is better than for many years past. Season has been unfavorable to cotton, but it is looking healthy, and there is about 20 per cent. more planted than last year. Corn small, but healthy.

Lee county, Miss.—Cotton very unpromising, dying to an extent unprecedented. The stand is bad in both cotton and corn.

Monroe county, Miss.—Increased attention being given to the culture of clover and tobacco, and indications are that these crops will hereafter be specialties, promising to be more remunerative than cotton.

Neshoba county, Miss.—Cotton has suffered immensely from the late rains and cold weather, and is somewhat deficient in stand.

Madison county, Miss.—With good weather the cotton crop may be an average, but the chances are to the contrary. Corn backward, but stand good.

Jefferson county, Miss.—Cotton and corn good for the season, but a month later than usual.

La Fayette county, Miss.—Cotton acreage somewhat increased; the stand is defective, but improving; with favorable weather may turn out a fair average crop.

Yalabusha county, Miss.—Prospect for cotton very unfavorable, in many localities not more than half a stand. With favorable weather the plants may still do well. Corn acreage small, and crop poorly cultivated.

Attala county, Miss.—Cotton and corn never poorer at this date, but they may yet be good.

Lauderdale county, Miss.—But one field (five acres) of wheat reported in county, and this is a failure from rust. Corn late. Cotton one-fourth less than in 1868.

Warren county, Miss.—Cotton looking feeble; seeds and young plants washed up during heavy rains of April, and cool weather has retarded growth. Yet with all these disadvantages it is the general opinion that the crop will exceed that of last year. Many who last year planted nothing but corn and potatoes, are on the other extreme this season, and many have abandoned city life for that of cotton farming; and in this county every nerve is being strained to make cotton, to the neglect of other crops.

Yazoo county, Miss.—A good season henceforth may bring cotton and corn up to two-thirds of a crop.

Issaquena county, Miss.—Rather more than average acreage planted in cotton, but reduced to about the same as last year by overflow of the Mississippi. Condition, late, small, but tolerably healthy.

Coahoma county, Miss.—The cotton acreage is about the same as last year. The crop does not look so well, but little can be judged from cotton at this season of the year. All that is desired is a good stand, with this the worst prospect may produce the finest crop. The recuperative power of the cotton plant excels that of all others. We are favorably circumstanced to reach, if not to exceed, the figures of last year, about 7,000 bales. The crop of 1860 reached 13,325 bales. The corn acreage is not so large as last year by one-sixth.

Morehouse parish, La.—The corn crop promises much better than last year; and cotton, though late, promises well.

Texas parish, La.—Corn and cotton not so promising as at same date last year. Acreage about the same. They are now growing finely.

Carroll parish, La.—May has proved disastrous to cotton; most planted then requiring replanting. Wheat destroyed by rust, including the Tappahaunock, which was very promising until thus attacked.

Jackson parish, La.—Corn is three weeks late. Cotton looks very badly; most of it dies as soon as it comes up. The stand is so bad that it will be impossible to make an average crop.

Winn parish, La.—Corn and cotton look as well as usual this early in the season. The acreage in cotton is much larger than last year.

Goliad county, Texas.—Cotton is doing well; the caterpillar has made its appearance, but as yet has done no injury.

Dallas county, Texas.—Wheat rather above an average.

De Witt county, Texas.—Prospect for corn and cotton very flattering.

Fayette county, Texas.—Pretty fair stand of cotton; the area planted is somewhat greater than last year, and the crop promises well. Corn late but if the weather continues favorable the crop will be very large.

Harris county, Texas.—Corn presents a better appearance than for several years past.

Washington county, Texas.—Corn will yield over an average crop. Cotton looks very promising. All crops are being well cultivated and look well.

Hunt county, Texas.—Cotton backward, with a bad stand.

Smith county, Texas.—Cotton backward, and looking badly. Corn looks well.

Monroe county, Ark.—Cotton injured by cold spring. Large plantations must replant or change to corn.

Phillips county, Ark.—Cotton small, with defective stand; worms have done considerable damage. Corn looks thrifty.

Arkansas county, Ark.—Corn promising; plenty planted to supply the county. Cotton fair, considering the season, and if the summer be dry a good crop will be made. Most of it has been worked over. Labor is very scarce, and, as most farmers have put in a large crop for their force, if the season should prove wet the crop will be poorly cultivated.

La Fayette county, Ark.—Nearly every one in the county has gone mad to put in cotton, and the acreage is double that of last year. If the season is not very good for corn there will not be enough breadstuff made to feed the people who are so eager to grow cotton. The cotton plants look badly, but a few warm days has started them to renewed growth.

Union county, Ark.—Cotton in many instances has died out and had to be replanted. Corn looks sickly and yellow.

Independence county, Ark.—About 25 per cent. more cotton planted; of this one-third rotted in the ground, and the cut-worm destroyed another third; the remainder is yellow and unhealthy. Wheat very promising. Corn stands the cool season well.

Washington county, Ark.—There never was a better prospect for wheat in northern Arkansas. Corn looks badly, owing to the cool, wet spring.

Calhoun county, Ark.—Crops looking badly, from the excessive rains.

Clark county, Ark.—Three-fifths of the land in cultivation is in cotton. The crop is backward, but the season has been favorable for working, and the prospect is good for a full crop.

Smith county, Tenn.—Wheat crop promising. The stand of corn is not good. The Tappahannock is proving itself adapted to this section.

Shelby county, Tenn.—Crops suffering from dry weather, especially cotton.

Marion county, Tenn.—This county never had so large a crop of wheat. I have traveled within 30 days from this point to Nashville, Knoxville, Augusta, Macon, Columbia, and Montgomery, and I have never seen the crop look more promising. Corn backward, but with a good stand.

Fayette county, Tenn.—The second planting of cotton is coming on finely, and will bring up the average to a full half stand.

Knox county, Tenn.—Wheat never looked much better here than now; no sign of rust or smut. Fields put in with the drill and fertilized with guano are very fine.

Sullivan county, Tenn.—The Hessian fly deposited its eggs in all early-sown wheat last fall. Many fields will not make the seed sown, while others are very good. The whole crop will average 40 per cent. above last year, with an increase of 25 per cent. in acreage.

Dyer county, Tenn.—Wheat unusually promising, with considerable increase in acreage. Large increase in cotton acreage—prospect good. Acreage of corn decreased one-third, with prospect unpromising.

Green county, Tenn.—Extra prospect for wheat; but within 10 days small green insects by millions have appeared on the stalk and in the heads. They turn brown as they advance in age. They have done no appreciable harm as yet. Viewed with a glass, they appear smooth and wingless, with black legs. Some rust has appeared lately. [The insect is most probably the grain-plant louse, or *aphis*, which sucks the sap and thus weakens the plant.]

Giles county, Tenn.—Wheat, oats, and rye were never more promising. I have a piece of Tappahannock wheat, the first I ever saw. This variety is the universal favorite.

Hickman county, Tenn.—Wheat taking the rust, but it has not affected the stalk yet. Cotton very backward; much replanted. Corn in good condition.

Montgomery county, Tenn.—Wheat in danger from rust. Insects numerous; almost impossible to get a stand of tobacco.

Monroe county, Tenn.—Good prospect for wheat.

Obion county, Tenn.—Broom corn looking well; increased acreage. Two broom factories in the vicinity of Union City have had an encouraging effect upon planters.

Rutherford county, Tenn.—Cotton backward and unpromising, but a few weeks may show a marked change for the better. The acreage is somewhat larger than last year.

Perry county, Tenn.—Peanuts have been planted to far greater extent than usual—perhaps three-fold. The crop will probably reach 150,000 bushels, which could now be sold to speculators at \$1 per bushel.

Harrison county, W. Va.—Wheat prospect better than for 10 years past.

Putnam county, W. Va.—Wheat looking well, but in danger from rust. Corn backward. Unfavorable spring.

Brooke county, W. Va.—Corn late, but growing rapidly; generally a good stand, and increased acreage. Potatoes largely planted and doing well.

Wood county, W. Va.—Prospect for wheat and fruit is excellent.

Randolph county, W. Va.—Tappahannock wheat yielded 900 pounds from 60 pounds sowed, and ripened 10 days earlier than blue stem or Zimmerman.

Monroe county, W. Va.—Wheat 25 per cent. better than for years. Pastures good; clover on the increase and very fine. Winter rye, half a crop and half acreage.

Braxton county, W. Va.—Wheat very promising; so much more so than for some years past that the farmers are quite excited over it. Oats are not very promising.

Graves county, Ky.—Corn crop exceedingly backward. Wheat never looked better; one-fourth increase in acreage.

Jefferson county, Ky.—Corn small and sickly, but will recover, as the warm weather has set in.

Livingston county, Ky.—Spring cold and wet, and corn backward. Scarcity of tobacco plants, caused by insects eating the young plants.

Boone county, Ky.—The culture of sorghum is receiving much attention in this county.

Fayette county, Ky.—An increased acreage in hemp, but the prospect for a crop is gloomy, in consequence of the cold, wet spring.

Lincoln county, Ky.—The mast crop promises to be good.

Scott county, Ky.—Hemp has been sown extensively, but is suffering at this time, owing to the weather.

Harrison county, Ky.—The Tappahannock wheat looks splendid.

Hickman county, Ky.—Cotton doing badly. Wheat is suffering from rust; the acreage is larger than last year. Sorghum crop will be increased one-third this year.

Warren county, Ky.—Wheat extremely fine—some rust on the blades.

Henry county, Ky.—Poor stand of corn. The cut-worm, ant, and other insects have done much damage. The young tobacco plants have been much injured by the fly.

Russell county, Ky.—Wheat injured by hail, and the rust has appeared in some fields. The fly and bug have destroyed a large proportion of the tobacco plants. Corn backward; poor stand.

Hickory county, Mo.—The Hessian fly has done much injury in the young wheat. Corn backward. Potatoes never looked better.

Barton county, Mo.—Corn looks well; large breadth planted compared with last year.

Cass county, Mo.—Early sown wheat on old ground stood pretty well; late sown on old ground froze out. Those failing in fall wheat put in spring wheat.

Vernon county, Mo.—Extra crop of corn planted; looks well. Large crop of sorghum will be put in, with the view of graining.

Jefferson county, Mo.—The chinch-bug has appeared, and has already destroyed a number of pieces of corn, and damaged wheat somewhat. Salt has been used as a preventive, with gratifying success.

Moniteau county, Mo.—Wheat in the timber is extraordinary; in the prairie it was badly frozen. Too thin on the ground, but looks well. The stand of corn is decidedly bad.

Cole county, Mo.—Corn late; has made feeble growth.

Dent county, Mo.—Rust on wheat in a few places. From 1st to 10th of May numerous striped caterpillars appeared; one piece of woodland, 100 acres, completely stripped by them. No injury to the crops yet.

Pike county, Mo.—Very wet; half the corn unplanted. Wheat injured by hail storm.

Adair county, Mo.—One-half winter wheat and rye killed by freezing weather in March. Spring grain looks well.

Caldwell county, Mo.—Three-fold acreage in wheat, but it will make only half a crop, owing to winter killing, chinch-bug, and grub-worm. The crop will yield more in bushels than last year, however.

Cooper county, Mo.—Never a finer prospect for wheat.

Schuyler county, Mo.—Corn promising good crop.

Grundy county, Mo.—The chinch-bug and a large white grub-worm have appeared. The Tappahannock wheat sown last fall was a total failure. It was sown in October. Wheat crop generally injured in March by freezing and thawing. Unusual acreage of potatoes; prospect good.

Howard county, Mo.—Corn and oats reduced in acreage by the large area devoted to wheat. Corn very backward.

Mercer county, Mo.—Wheat in fine condition, promising best crop ever raised here. The same with rye, oats, and the grasses.

Mississippi county, Mo.—Wheat fine; 50 per cent. better than usual.

Phelps county, Mo.—Exceptional cases of injury by the Hessian fly.

Sullivan county, Mo.—Potato bugs have appeared.

Alexandria county, Ill.—Wheat looks poorly; the lower part of the head has nothing in it; caused by backward spring and wet weather.

Cook county, Ill.—Clover lifted by frost, and mostly killed out.

Livingston county, Ill.—Season backward; not more than half the corn planted yet.

Morgan county, Ill.—Corn not nearly all planted.

Champaign county, Ill.—If rains continue, not over two-thirds of a crop of corn will be put in.

Logan county, Ill.—Season wet and backward; corn not nearly all in yet.

Monroe county, Ill.—Corn very backward.

Sangamon county, Ill.—Not more than half the corn crop of central Illinois is yet planted. For such seasons our farmers want a good va-

riety of corn which will mature sufficiently early to be safe from frost in 90 days from planting.

Lee county, Ill.—Hay crop flattering.

Du Page county, Ill.—Corn planting behind, and rains have rotted some that has been put in. Potato bugs have made their appearance.

Stark county, Ill.—Wheat, oats, and grass very good. Corn backward.

Stephenson county, Ill.—Crops generally planted in good condition, though much delayed by wet weather.

Clinton county, Ill.—The chinch-bug is at work on the spring barley.

De Witt county, Ill.—Corn prospect very poor; about half planted. Early planting made poor stand. Potatoes look well.

Macon county, Ill.—Spring wheat, oats, and barley cut short by wet weather, which has also delayed corn planting.

Putnam county, Ill.—Heavy rains made replanting necessary in many corn-fields. Potato bugs have appeared in the early potatoes.

Clay county, Ill.—An extensive crop of flax sown, and a few acres of castor beans. Crops all looking well, with prospect of a bountiful harvest.

Ford county, Ill.—Broom corn is receiving some attention; one man expected to put in 1,200 acres, but the weather has been unfavorable thus far.

Franklin county, Ill.—Potatoes far better than usual. Corn promising.

Jackson county, Ill.—Sweet potatoes are being planted extensively.

Perry county, Ill.—The sack of Tappahannock wheat received from the Department last fall was sown on about 30 square rods. It is now headed, in bloom, and about five feet high—altogether the finest wheat in appearance I have ever seen.

St. Clair county, Ill.—Prospect of a good harvest for all cereals.

Washington county, Ill.—Wheat has looked finely, standing thick and well headed, but the leaves are already covered with rust—none on the stalks. Should wet weather continue our crop will be a failure; otherwise we may have a large crop.

Kendall county, Ill.—Corn is in a precarious condition. It will require a good season henceforth to make a fair crop.

Randolph county, Ill.—The army-worm (*Leucania extranea*) has injured timothy meadows considerably, and the cut-worm has damaged the castor bean, which is largely cultivated in this county.

Lawrence county, Ill.—The army-worm has appeared in considerable numbers—noticed first in meadows, and then in wheat. The chinch-bug has also commenced its ravages.

Indianapolis, Ind.—Heavy rains have raised the streams throughout the State, doing great damage to all growing crops along the valleys, and ruining much of the wheat on all low grounds, and producing a still greater growth of straw, when the growth was already much heavier than was safe for a good crop. The probabilities are against a good crop.

Floyd county, Ind.—Wheat the best ever known.

Jennings county, Ind.—Wheat more promising than for many years.

Fountain county, Ind.—Wheat never looked better.

Boone county, Ind.—Heavy rains have done much damage to the wheat crop. Much of it down, and not likely to rise again.

Brown county, Ind.—Prospect never better for wheat. Should no disease or other injury arise, the increase will be 50 per cent. over last year.

St. Joseph county, Ind.—The Tappahannock wheat showed heads 24th of May, at least 10 days earlier than any other variety.

Wayne county, Ind.—Wheat never looked better, but there is a probability of too much straw.

Bartholomew county, Ind.—Heavy rains have caused some damage to wheat by overflow, but the crop will be large.

Hancock county, Ind.—Corn planting retarded by wet weather, and that planted washed up on sidling ground.

Miami county, Ind.—Wheat, rye, oats, barley, and meadows never looked better, but we fear they are too rank. Much corn land overflowed.

Scott county, Ind.—Wheat, oats, and grass splendid.

Tippecanoe county, Ind.—There has perhaps never been such a prospect for wheat in this county. Corn poor. Potatoes look well.

Parke county, Ind.—It is feared that the heavy rains have materially injured the wheat crop.

Vigo county, Ind.—Wheat growing too fast.

Whitely county, Ind.—Corn not half planted yet.

Cass county, Ind.—Not more than two-thirds of the corn crop planted. Excessive rains; and a cool dry June is the only thing that can save wheat.

Lagrange county, Ind.—Wheat less promising than earlier in the season—beginning to fall on rich ground. Continuance of wet weather will make too much straw.

Putnam county, Ind.—If nothing befalls wheat, the crop will be the largest ever known in this county.

Johnson county, Ind.—The wet weather, it is feared, will seriously injure wheat on undrained lands. Corn backward, and not all planted.

Newton county, Ind.—The culture of flax is becoming of considerable importance, from the fact that if a good crop is secured, the seed, at \$1 75 per bushel, will pay for the land it is raised on.

Steuben county, Ind.—Winter cereals have never promised better than now.

Elkhart county, Ind.—The cultivation of flax for the seed only is growing in favor. It is profitable, particularly on clay soil. The crops in fine condition.

Wood county, Ohio.—Corn looks unusually bad—two-thirds of the acreage requiring replanting, owing to the cold, wet weather. Many fields of wheat badly down, the result of the recent high winds; probably not more than the usual crop.

Hardin county, Ohio.—Spring rather wet, which retarded the planting of corn, but it has been favorable for grass, and the small grains.

Huron county, Ohio.—Wheat never looked better than it does this year.

Logan county, Ohio.—The heavy rains have injured wheat. Much of it is so tender and full of sap that it falls before the wind and may not rise. Grass and oats promise large yield.

Morrow county, Ohio.—Corn planting greatly hindered by wet weather; half the crop unplanted, and much that is planted must be replanted. Much of the wheat is very forward for this section, and is falling.

Lorain county, Ohio.—Land very wet. Corn planted on low land must suffer.

Lucas county, Ohio.—Flax is receiving more attention, and promises to become a leading crop.

Medina county, Ohio.—Two-thirds to three-fourths of the corn is planted. Everything is growing rapidly, but farming operations are being delayed by the wet weather. Wire-worms are injuring oats, especially on sod ground.

Mercer county, Ohio.—Corn not more than one-third planted. Very wet. Potatoes rotting.

Portage county, Ohio.—Winter wheat looks better than for 10 years, with a large acreage. Rye also promising.

Seneca county, Ohio.—Prospect for wheat equal to if not better than any preceding crop for many years.

Union county, Ohio.—Wheat prospect never better. Not more than half the corn crop planted, owing to wet weather.

Monroe county, Ohio.—Wheat better than for 10 years. Oats short and light.

Marion county, Ohio.—In consequence of the incessant rains much corn must be replanted, and there is danger that wheat will run to straw.

La Crosse county, Wis.—Most of the hop yards are poled and are looking well. With a favorable season there will be as many hops raised this season as there were last year.

Richland county, Wis.—Hops half plowed up, and half of those left are poled with one pole at a hill. They look very well. Corn has not come up well in some neighborhoods.

Green county, Wis.—Southern Wisconsin never had a better show of small grains and grass at this season of the year.

Crawford county, Wis.—About half the acreage in hops last year has been plowed up. Crop looking well.

Ozaukee county, Wis.—Spring wheat sown late. The hay crop must be very large owing to constant rains.

Brown county, Wis.—Early sown grain very fine; late sown, backward.

Buffalo county, Wis.—Potato bug here in full force.

Columbia county, Wis.—About 40 per cent. of the hop yards have been plowed up this spring.

Fond du Lac county, Wis.—Hops injured by hail, many yards plowed up. Chinch-bugs somewhat plenty. Air filled with potato bugs. Corn very backward.

Jefferson county, Wis.—Corn being plowed late, with the prospect of decreased acreage.

La Fayette county, Wis.—One-third of the land sown to small seed is put in flax. It yields about 12 bushels per acre, generally worth two dollars per bushel. Culture about the same as wheat.

Waushara county, Wis.—About 25 per cent. less hops than last year: condition good.

Lapeer county, Mich.—Winter crops looking remarkably well.

Washtenaw county, Mich.—Oats look fine. Wheat and grass never looked more promising.

Montcalm county, Mich.—A great many hop yards are being plowed up. Last year's crop not disposed of.

Cass county, Mich.—The Colorado potato bug is likely to destroy much of this year's crop. Hops promise an increased product.

Livingston county, Mich.—Hops about one-third plowed up.

Van Buren county, Mich.—Wheat, oats, and grass never appeared better.

Berrien county, Mich.—Wheat late; not so promising as last spring.

Calkoun county, Mich.—Perhaps one-fifth of the hop yards plowed up. More attention being given to fruits for the Chicago markets.

Muskegon county, Mich.—All crops backward.

Meeker county, Minn.—Corn has a poor show, the acreage reduced 20 per cent. Wheat promising.

Fillmore county, Minn.—Almost all the hop yards have been plowed up.

Ramsey county, Minn.—Flax has been sown quite largely this spring, and the corn acreage has been increased, owing to the low price of wheat.

Butter and cheese are receiving more attention, and there is a disposition to make more pork and to diversify crops.

Carver county, Minn.—Abundant crops in prospect.

Goodhue county, Minn.—Winter wheat has rarely been cultivated in this county, but experiments tried last fall promise entire success.

Brown county, Minn.—Wheat on new land looks well, but on old land it is not so good as last season.

Nicollet county, Minn.—Corn looks yellow and sickly, owing to the late cold spring.

Stearns county, Minn.—Season backward, but crops are promising. There will be a reduction in the potato crop in consequence of the ravages of the bugs last year, but the corn acreage will be greater.

Washington county, Iowa.—More sorghum is being planted this spring than for three years past, and also a larger acreage in potatoes than ever before; more than 50 miles of Osage hedge was set out in the spring and is in fine condition.

Boone county, Iowa.—Excellent weather for small grains; too wet for corn, replanting being necessary in many cases. Wheat prospect never better.

Cedar county, Iowa.—Potato acreage increased 20 per cent., and crop promising.

Johnson county, Iowa.—Spring wet and crops backward, but not beyond recovery.

Jones county, Iowa.—Hop acreage; considerable less than last year; a great many yards plowed up.

Muscatine county, Iowa.—Cereals and grasses uncommonly fine. Corn fields also unusually green, though the stand is rather defective.

Tama county, Iowa.—There is increased interest in the culture of Hungarian grass, and also of buckwheat.

Crawford county, Iowa.—Grasshoppers have committed serious depredations in gardens, field onions, &c.

Lucas county, Iowa.—Winter rye looking badly; other crops promising.

Des Moines county, Iowa.—Much corn yet to be planted and much to be replanted, owing to excessive rains.

Fayette county, Iowa.—Season backward for corn, but more than usual has been planted, and it is doing well.

Allamakee county, Iowa.—The potato bugs have again appeared in great numbers.

Audubon county, Iowa.—Plenty of grasshoppers; wheat injured; gardens pretty well used up.

Madison county, Iowa.—Weather unfavorable for corn.

Buchanan county, Iowa.—Much of the corn land replanted.

Hardin county, Iowa.—Wheat looks too heavy; danger of falling.

Wapello county, Iowa.—Prospect of not more than half a crop of wheat; injured by the cold and dry weather of March and April. A number of fields plowed up and seeded to corn.

Coffey county, Kan.—Much winter wheat frozen out. Promise, about three-fifths of a crop.

Marshall county, Kan.—Crops and pasturage look well.

Miami county, Kan.—Corn backward. A large portion of wheat land plowed up for corn—much wheat, clover, and timothy having been frozen out.

Atchison county, Kan.—Winter wheat much injured by frost, especially that sown late broadcast; early sown looks well. Locusts eating the spring wheat.

Bourbon county, Kan.—Wheat sown from 20th August to 20th Septem-

ber is generally doing well; that sown after September 25th was nearly destroyed by alternate freezing and thawing.

Cherokee county, Kan.—Wheat badly winter-killed; 10 per cent. increase in acreage however.

Douglas county, Kan.—The chinch bug has commenced its ravages, and in places grasshoppers have hatched out in considerable numbers.

Doniphan county, Kan.—Small grains look well. Wet for corn, but large area planted.

Jackson county, Kan.—Crops promising. Wheat never looked better, though the grasshoppers have injured some fields. Some winter wheat was frozen out and the land put in corn. Wheat put in by drill did much better than that sown broadcast. Corn late—too wet.

Shawnee county, Kan.—Threefold acreage in winter wheat. Chinch-bugs and grasshoppers have injured the crop. Drilled wheat 30 per cent. better than broadcast sown; affected less by freezing.

Butler county, Kan.—Prospect never better for small grains.

Hall county, Neb.—The rough chaff winter wheat received from the Department in 1868 was partly killed by frost, but what remains is doing well, and I think it will be just the thing for this section.

Cass county, Neb.—Corn is not doing very well owing to the continuous rains. Grasshoppers numerous, but not doing as much damage as last season.

Cuming county, Neb.—The prospect for wheat and oats is very flattering. Too cool for corn; it looks badly.

Washington county, Neb.—A peck of wheat received from the Department last fall was sown, and came up well and looked well until Christmas, when it was covered with snow until spring. When the snow went off not a vestige of wheat could be found; from what cause none could tell. Winter wheat, rye, or barley do not succeed well here.

Dakota county, Neb.—Corn has come up quite irregularly. Many farmers will be compelled to replant.

Weld county, Col.—Grasshoppers have done considerable damage to crops in some localities and are likely to do considerable more. The prospect for corn and potatoes is fully up to the average, however.

Yankton county, Dak.—All crops look remarkably well for this season of the year. No grasshoppers have yet appeared, and farmers think they have left entirely.

Iron county, Utah.—Large numbers of grasshoppers, about half grown, have eaten a great many acres of wheat and are still eating, but most of it is growing again.

San Pete county, Utah.—An unusual breadth of small grains sown. No irrigation required, rain having fallen copiously, at regular intervals; hence there is one sea of verdure as far as the eye can reach. The fall grain proved almost an entire failure. Corn and sugar corn are receiving considerable attention.

Butte county, Cal.—Winter wheat and rye are in the best condition.

Los Angeles county, Cal.—Grain crops promising large yields.

Colusa county, Cal.—Wheat doing well.

San Joaquin county, Cal.—All grains superior to previous years.

Monterey county, Cal.—Great breadth of wheat and barley; large yield promised.

Sutter county, Cal.—Wheat and barley ready for harvest. Broom-corn is the staple on Butte slough, and the corn brush raised in that section commands the highest price in San Francisco. The seed is used for feed, being considered of one-half the value of other grains.

Santa Clara county, Cal.—The rust has made its appearance and

threatens much damage. It is chiefly confined to the foliage as yet. Many acres of wheat and barley have been cut for fodder. The crop will fall short of estimates of two months ago.

Sacramento, Cal.—The prospect never was so good before for a large crop in California, and appearances seem to indicate with certainty that the ensuing harvest yield will be greater by at least one-third than was ever before produced.

Colusa county, Cal.—Crops will be good in this county. No complaints of either rust or smut.

Solano county, Cal.—The grain yield will fall short of that of last season. Volunteer fields are being mowed for hay and many of the late sown fields will be hardly worth harvesting.

Fresno county, Cal.—Wheat acreage 150 per cent. greater than last year. Condition of the crop one-tenth below that of last year.

Lassen county, Cal.—Wheat in average condition, but the acreage is 10 per cent. less than last year.

FRUITS.

Belknap county, N. H.—A very large number of fruit trees, principally apple and pear, have been set out this spring.

Delaware county, N. Y.—Our prospect for fruit was never better. Apple trees now in full bloom, (June 1.)

Jefferson county, N. Y.—There never was a greater amount of bloom of plums, cherries, and every kind of berries. Every shrub and plant was covered with blossoms, and as they appear to have well set, there is good prospect of an abundant crop of small fruit.

Ulster county, N. Y.—Antwerps will give a fair crop, say two-thirds. Grapes show plenty of bloom. The same with currants, cherries, and all small fruits.

Niagara county, N. Y.—Berry-growing is becoming quite popular in this section, and many hundreds of acres, in the aggregate, of the various kinds will be picked this year, giving employment to many women and girls. The black raspberries are mostly the Doolittle, and the red the Franconia. Of strawberries, the Wilson's Albany is by far the most profitable. The nursery business is being largely extended.

Plymouth county, Mass.—The blossom buds of most varieties of apples have not opened this spring, but have thrown out side leaf buds, and then the center of the bud containing the blossom has dropped off. I do not understand why apple buds were killed and peach buds preserved better than for some years past.

Hudson county, N. J.—Apples, peaches, and pears promise well. The season has been very favorable for them, and if we can keep the insects away we shall have a large crop. We have more show for cherries than for many years, and the insects that injure them have not made their appearance yet. We are protecting the birds, and they are great helps in keeping the insects in check.

Passaic county, N. J.—From present appearances there will be a good crop of grapes and black and red currants.

Essex county, N. J.—The bloom of fruit trees generally was very profuse, but the subsequent cold, dry, windy weather chilled the fruit as it was forming and caused much to fall off.

Ocean county, N. J.—The increase in acreage in cranberries is about 15 per cent., but it is too early to report the prospect of crop.

Burlington county, N. J.—The prospect for large crops of cranberries is very good, also for strawberries, blackberries, and raspberries.

Cumberland county, N. J.—The prospect for fruit of all kinds is unusually fine. The strawberry crop promises to be very heavy, and the bloom on the blackberry vines is remarkable.

Chester county, Pa.—The peach crop promises better than for many years; much less curl of leaf. The season is very favorable for fruit.

Franklin county, Pa.—Fruit never promised better, though caterpillars are very numerous and destructive.

Montgomery county, Pa.—Peach trees loaded with fruit; apples and all small fruits abundant.

De Kalb county, Mo.—Peaches almost entirely killed by frost; apples, pears, and cherries promise large crop.

Benton county, Mo.—Peach crop almost a total failure.

St. Francis county, Mo.—From 7,000 to 8,000 grape vines set out last year, mostly Concord, and they look remarkably well.

Howard county, Mo.—Fine prospect for fruit, excepting peaches.

Dallas county, Mo.—Peaches a failure.

Bureau county, Ill.—Fruit has set well for a very large crop.

Union county, Ill.—About 25,000 bushels of strawberries have been shipped from this county this spring.

Stephenson county, Ill.—Great amount of bloom this spring on fruit trees; condition good.

Macon county, Ill.—Bloom of peaches and pears mostly knocked off by hailstones.

Clay county, Ill.—Fruits bid fair for a large crop.

Ford county, Ill.—Peaches mostly winter-killed.

Floyd county, Ind.—Fruit trees literally loaded.

Adams county, Pa.—The prospect for fruit is most encouraging; never saw it better.

Washington county, Pa.—Fruit trees one mass of bloom, and the crop promising.

Alleghany county, Pa.—Never had so fine a prospect for an extraordinary crop as we have this season.

Harford county, Md.—The peach crop may be considered a failure in this county. The trees have been dying for the last 15 years, and those who have orchards say they bloom well, but bear little or no fruit, and soon die.

Anne Arundel county, Md.—Strawberries are fine, with double the usual average. Blackberries (Lawton) promise an abundant yield. Tomatoes are being cultivated extensively this year, average twice that of last year.

Queen Anne county, Md.—The number of peach trees in bearing this year will be five or six times greater than in any previous year. Pears, both standard and dwarf, are being planted largely, and the production rapidly increasing. Strawberries are an important crop on river lands, 5,000 to 6,000 quarts being sent to Baltimore daily.

Northampton county, Va.—Peaches damaged by late frost. Quinces all destroyed. Apples, pears, and berries uninjured.

Rockbridge county, Va.—Grapes are looking well. I have 20 acres planted—about 80 acres in the county—most of them young, not yet in bearing. Our location seems well suited to the vine. I shall make some wine this year from three-year old vines. Varieties planted: Catawbas, Concord, Delaware, and Isabella.

Beaufort county, N. C.—Peaches and pears nearly all killed by late frosts.

Currituck county, N. C.—Peach and pear crop materially injured by frost.

Chowan county, N. C.—Fruit crop cut off by frost.

Franklin county, N. C.—Fruits—apples, peaches, and pears—almost entirely destroyed by frost.

Iredell county, N. C.—Peaches all killed by frost.

Orange county, N. C.—Fruit destroyed by frost.

Tyrrell county, N. C.—Cranberries are not cultivated here, but grow wild in the swamps and bog lands. There are hundreds of acres in the county well set with the plants, and the prospect is good for a fair yield.

Chatham county, N. C.—The crop of wild or old field strawberries has been very large, and the fruit fine and of excellent flavor. With care this crop could be made a source of profit. They sold this season at 5 to 10 cents per quart.

Davidson county, N. C.—Young fruit much injured by frost. This is a great region for blackberries, and many thousands of dollars worth are annually exported from this section of the State. The amount of bloom is greater this year than ever before.

Gates county, N. C.—The May frosts destroyed nearly all the fruit.

Yadkin county, N. C.—Peaches and pears nearly all killed by frost.

Heard county, Ga.—Peaches seriously damaged by frost; many orchards entirely killed.

Troup county, Ga.—The peach crop reduced at least one-half by the late and continued frosts.

Jackson county, Ga.—The peach crop will be almost a total failure—killed by frost.

Butts county, Ga.—Peaches much injured by frost—all killed in some places. Good crop of cherries.

Leroy county, Fla.—The frosts of March killed oranges and other fruits. Some of the trees were killed to the ground. Some are putting out again, but there will be very little fruit.

Duval county, Fla.—The oranges are nearly all black with insects. They are also destroying grapes and plums. They destroy the trees as well as the fruit.

Leon county, Fla.—Our peaches bloomed full, but while in bloom they had a severe frost on them. This, with the subsequent cold weather, has caused nearly all the young fruit to drop.

Coosa county, Ala.—Late frosts have injured fruits very much, in some orchards being entirely destroyed.

Morgan county, Ala.—The peach and pear crops nearly a total failure.

Calhoun county, Ala.—All the peaches and nearly all the apples and pears killed by frost.

De Kalb county, Ala.—Peaches and pears killed in April by frost.

Jefferson county, Miss.—Peaches and apples will be abundant; berries plentiful.

Harris county, Texas.—Peaches nearly all destroyed by frost; from an orchard of 1,800 trees not more than 10 bushels will be gathered. From 640 plum trees 11 bushels have been taken.

Montgomery county, Ark.—Peaches have nearly all been killed by frost.

Washington county, Tenn.—An unusual interest has sprung up in fruit culture, especially apples and grapes, and a great number of trees and vines have been set out this spring.

Haywood county, Tenn.—Many are raising strawberries with unusual success. Grapes never fail in the hilly regions of the county, and this portion seems peculiarly adapted to the culture of peaches.

Nicholas county, W. Va.—The prospect for fruit of all kinds has seldom been equalled in this county.

Grant county, W. Va.—Cranberries grow in our mountain regions to a considerable extent, and are quite profitable to gather.

Randolph county, W. Va.—Cranberries are not cultivated, but are found in several swamps; they yielded an average crop last year.

Morgan county, W. Va.—About 5,000 grape-vines have been set out during the past year, and are doing well.

Monroe county, W. Va.—The prospect for fruit surpasses any season for a number of years.

Spencer county, Ky.—There is promise of an abundant crop of fruit.

McDonald county, Mo.—Peach crop an entire failure.

Macon county, Mo.—Peaches a total failure. Small fruits promising.

Jefferson county, Mo.—This is the banner county for fruit. Prospect good, especially for apples, pears, and grapes.

St. Louis county, Mo.—Grapes promise an immense yield.

Fountain county, Ind.—Peaches almost an entire failure; apples fair; pears very fine.

Wayne county, Ind.—Never had a better prospect for fruit of all kinds.

Benton county, Ind.—Prospect for small fruits never better.

Whitley county, Ind.—Fine prospect for apples, pears, and grapes.

Grant county, Ind.—Few peaches; apples promising.

Newton county, Ind.—Peaches killed by frost.

Owen county, Ind.—All small fruits in abundance.

Washington county, Ohio.—Fruit of all kinds will be abundant, except on apple trees which bore last year.

Seneca county, Ohio.—Peaches promise the largest crop ever raised in the county. Grapes and cherries look remarkably well.

Union county, Ohio.—All kinds of fruit will do well if present promise shall be realized.

Williams county, Ohio.—Apples appear safe, with as good a crop as was ever raised. Peaches and pears the same. Small fruits fine beyond parallel.

Meigs county, Ohio.—Fruits very abundant and promising.

Waushara county, Wis.—Fully 10 per cent. increase in cranberry acreage in this county; condition 20 per cent better than last year.

Washtenaw county, Mich.—All fruits promise abundant yield.

Cass county, Mich.—All kinds of fruit promise well.

Van Buren county, Mich.—Grapes appear to be coming on well.

Berrien county, Mich.—Apples, peaches, and pears promise an overwhelming crop.

Decatur county, Iowa.—Apple trees mostly small but full of fruit; the same with pears; many trees the first year in bearing.

Boone county, Iowa.—Fruit prospect never better.

Johnson county, Iowa.—All kinds of fruit trees are loaded.

Louisa county, Iowa.—Small fruits in abundance.

Lee county, Iowa.—Fruit promising abundant yields.

Story county, Iowa.—An increase of 20 per cent. in grape vines planted and 25 per cent. in grape bloom.

Franklin county, Kan.—Peach trees in bad condition; leaves shriveled and falling off.

Jefferson county, Kan.—All peach buds killed in December except on high land.

Morris county, Kan.—Grapes in splendid condition.

Doniphan county, Kan.—Peaches generally killed.

Linn county, Kan.—Fine prospect for small fruit.

Salt Lake county, Utah.—The apple trees have suffered from the effects of the grasshopper raids of the past two or three years. The peach trees were not so seriously injured, and seem to recuperate faster.

Walla-Walla county, Washington Ter.—I have never seen peaches and

plums succeed so finely as here. They are perfectly healthy and free from the curculio. Plum trees four years from the graft have borne 400 pounds of fruit.

San Pete county, Utah.—An immense number of fruit trees have been been set out this season, especially of the apple.

EXTRACTS FROM CORRESPONDENCE.

THIN SEEDING WHEAT.

Rock county, Wis.—Having satisfied myself, from the experiment of last year on 10 acres of wheat, of the feasibility and advantage of light seeding in connection with the cultivation of small grain, I have been encouraged to adopt it as a permanent system. The wheat, oats, and barley received from the Department I put in with a drill 14 inches apart, at the rate of one-half bushel of the former and one bushel of the latter, on the 7th of April, all of which now (May 29th) nearly covers the ground. Land in a little better than middling condition. I have also sown in the same manner 17 acres of wheat, Canada Club and Rio Grande, and 47 acres of Surprise oats; of the latter I sowed 33 quarts per acre. These oats weighed 45 pounds per bushel. I have cultivated all once, and shall cultivate twice more if possible; can cultivate from 15 to 18 acres per day with a 12-toothed drill, costing one day's work with team to cultivate five to six acres three times. This work may be got out of the way in season not to interfere with the corn. Believing this to be a matter of importance, I have been somewhat explicit to encourage others who may be engaged in similar experiments to report progress, that our experience may be a mutual help. It is patent to every one that our *slack-twisted* way of raising small grain in America needs revolutionizing.

PLOWING WHEAT UNDER.

Kanawha county, W. Va.—We have an evidence in our neighborhood of the advantage of plowing wheat in, or under. One of my neighbors sowed wheat last fall, part of which he sowed first and then took the turn-plow and turned the seed under to the depth of about five inches, and for part he first broke the ground, and then sowed and harrowed it in. That which was plowed under is far superior to that which was harrowed; it is from six to nine inches taller and of a dark green color, while the other is pale and shorter. The land harrowed in, if any difference, should have brought the better wheat.

OREGON SPRING WHEAT.

Multnomah county, Oregon.—With this I mail specimens of Oregon spring wheat. No. 1, is known as Oregon white spring wheat, and is celebrated for superior white, delicate flour, equal to the best of white winter. It was sown April 9, 1868, and harvested the next August. Soil, yellow clay and sandy loam; no manure; depth of plowing about eight inches, two bushels of seed per acre; yield 35 bushels per acre; seed sown broadcast after plowing and harrowed in; no extra labor in cultivating. No. 2 was sown in March, 1868, and harvested in August. Soil and system of cultivation about the same as No. 1. Yield 45½ bushels per

acre. I have lived in Oregon about ten years and have never known a failure of any crop when properly cared for. Have never seen rust, weevil, sun-blight, or chinch-bug in wheat in this State, and have helped to harvest whole fields that yielded 60 bushels to the acre at 6½ pounds to the bushel.

On the 14th day of February bees were busy at work, returning to the hives laden with pollen. Flowers have been in blossom in every month during the year. If the season proves favorable there will be at least 33 per cent. more grain raised in Oregon in 1869 than in any previous season in the last ten years.

DIVERSITY OF CROPS—FERTILIZERS, &C.

Morgan county, Georgia.—Since the emancipation of the slaves there seems to be a growing tendency on the part of planters generally to cultivate less land in hoed crops and make a more generous application of fertilizers. This system is developing gradually the grain and grass resources of the country, and is drifting towards a universal system of mixed husbandry and small farming operations. The day is not far distant when sheep-raising will become throughout the south much more profitable than the culture of cotton; the low price of land, together with our mild, genial climate, reducing materially the expense of keeping and wintering sheep. This is a branch of industry which the stock-raisers of the country would do well to think upon.

Perquimans county, N. C.—The general depression in monetary affairs, and the large amount of farming lands being exposed at public sale, together with the exceedingly unfavorable condition of the past two crop years, as well as the yet unsystematized state of labor, have to a great degree prevented that march of improvement in agriculture which under a different state of affairs would in all probability be reported. More attention is given than formerly to varying the crops, and not so great a disposition to invest all in one, making it a specialty. Fruits and truck are attracting more attention, and will doubtless prove a success and highly remunerating to those engaged in their cultivation. Our people are becoming alive to the importance of converting more of the grain products of the farm into stock, and thereby saving more of the phosphates and other valuable elements for the manure heap.

Fayette county, Texas.—We are introducing the California clover from the Pacific coast, which promises to be quite an acquisition to the farming interests of our county. It is sown in October, grows through the winter, seeds in May, and is ready to cut in June. It has an enormous quantity of seed, and makes a good pasture, even after the seed ripens. All kinds of stock are fond of it either green or cured, and it is said by gentlemen who have experimented with it to be more profitable for pasture than any other grass. It resembles the red clover somewhat, has a yellow bloom, &c.

The great need of this part of the country is a greater diversity in cropping, and more laborers. We are, however, improving in both particulars. The Ramie is being experimented with, and grows well. I have a few hills of the second year's growth, which is very luxuriant. If the fibre can be prepared readily for market and will pay remunerating prices, the plant will be an acquisition to the south. The castor bean also promises to be a remunerating crop.

The freedmen are laboring better this year than ever before since they were freed, and altogether our agricultural prospects are brightening.

Spalding county, Ga.—The cotton season is certainly 10 days late, retarded by the late spring. It is being chopped out and brought to a stand; those who have completed this work complain that the stand is not a good one. Large quantities of fertilizers have been used; in this section the sales have exceeded by 400 per cent. those of any former year. More attention than usual has been given to the preparation of land by deep plowing and the use of improved agricultural implements. Both white and colored are earnestly at work, in the effort to make a large crop. The area planted will exceed that of last year by about 25 per cent. With a favorable season the yield per acre will be largely in excess of former years, by reason of better cultivation.

Newton county, Ga.—The use of commercial fertilizers has assumed an important feature in the agricultural interests of this county. The amount used is 750 per cent. increase over that used last year. If they prove to be genuine and the application to the cotton crop this year proves to be profitable, they will be applied by every farmer next year to his whole crop. Fertilizers have proved profitable applied to wheat and cotton; this season they are applied to a very limited extent to corn, principally to ascertain if they will be profitable or not.

Morgan county, W. Va.—Since the war the agricultural labor of this county has been diverted from its legitimate fields, and devoted to the destruction of the forest, cutting railroad timber, cooper's stuff, lumber, and bark for the tanneries, and to such an extent has this been carried that during the past and present years a considerable quantity of meat, flour, corn, and even potatoes have been imported into the county for food for men and animals. This evil will be partially avoided this year by increased acreage under cultivation and the promise of bountiful crops of fruits, roots, and cereals. The improved condition of the farming interest is mainly attributed to the use of phosphates and other artificial manures, which act kindly and directly on our soil.

CLOVER IN NORTH CAROLINA.

Randolph county, N. C.—About two years ago the experiment of clover growing was commenced in this county. Many of our people pronounced it a humbug, a useless waste of money and time; but now there is ocular demonstration of a grand success with it. A gentleman from the State of New York was here to-day looking out for himself a farm; and on examining one of my clover lots was much pleased at the prospect, and said that he believed it would yet prove a renovator of the worn-out lands of the south.

TRUCKING IN NORTH CAROLINA.

Duplin county, N. C.—Garden peas for northern markets, about 50 acres in the county. First peas shipped April 29; price \$8 per barrel; expenses of picking, freight, &c., about \$2 25 per barrel. Price rapidly declined to \$2 50 to per barrel. Most parties engaged lost from \$25 to \$75 per acre.

PEANUT CULTURE.

Amelia county, Va.—The low price of tobacco is driving thousands from the culture of it. By experiment with the peanut last year, upon a small scale, it was found to do well here and proved a highly paying crop upon certain soils, with a tolerably favorable season. Lime, as vended by the dealers under the name of "agricultural lime," appears

to be its special fertilizer: poor land in some cases being found to yield under this application in the drills 60 bushels to the acre. Tobacco will be planted in smaller quantity, and much attention turned to the peanut.

Surry county, Va.—Peanuts (*Arachis hypogea*) are being largely planted, in some case to the entire exclusion of corn. In consequence of planting too early many will have to replant, the first planting having rotted in the ground. This is resulting in much discouragement to planters, and it is hoped will finally lead to an abandonment of this crop, as its cultivation is no doubt one of the causes of the scarcity and high price of bread. Still, after meeting all the drawbacks, it is found to pay well at present rates; and its cultivation will not be abandoned as long as planters realize \$1 per bushel.

CULTURE OF ROOTS.

Chautauqua county, N. Y.—Farmers are sowing carrots this year, in order to save hay next winter and to keep in better condition. They can be grown at a cost of 18 cents per bushel. Large quantities of corn are being sown for fodder this year. From four to ten tons (cured dry) can be raised on an acre.

Westchester county, N. Y.—There is an increased quantity of roots raised in Westchester county now, owing to the failure of oats for some seasons back, and the sending of milk to New York. There are a number of farmers sowing mangold-wurzels and carrots; turnips are also raised to a great extent, as they are more productive than oats.

EARLY ROSE POTATO.

De Witt county, Texas.—I bought one pound Early Rose potato from R. Buist, jr., Philadelphia, sent per mail, at one dollar per pound. Planted March 6. Weather being wet, I feared they would rot, and have had them grabbed out, leaving the tops still growing and promising a second yield. The product weighed 70 pounds; quality, superior.

POTATOES IN NORTH CAROLINA.

Haywood county, N. C.—The potato (*Solanum tuberosum*), as a crop for home consumption, formerly promised well; but of late years it has been attacked by a small worm which has proved very injurious, causing a premature decay of the vines, soon after which the tubers would begin to rot, often leaving at digging time not more than half a crop.

OX-HEART CHERRY IN MISSISSIPPI.

Yalabusha county, Miss.—It has been generally stated by agricultural papers, and generally believed, that the May cherry, or Ox-Heart, would not succeed in this State; in consequence of which I have not attempted to grow them, except by way of experiment. One tree was planted nine or ten years ago, which has borne well and matured the fruit for the three past years. It only wants an elevated situation and a deep mellow soil in which to thrive here as well as in eastern Virginia.

FRUIT IN UTAH.

Duncan's Retreat, Utah.—Peach trees are out in full bloom, and promise a very heavy yield. Apricots are set, not promising as heavy as formerly. Plums just beginning to bloom, and show very heavy.

Apples will be in bloom in about ten days, and promise well. Grapes were not winter-killed the past winter. Grape roots and cuttings have been put out this spring in considerable numbers, as it has been proved that the grape is the best paying crop that can be raised in this section. Almonds appear very strong and thrifty. I was in one small orchard yesterday, comprising about 50 trees, seven years old, the best and most heavily loaded that I have ever seen anywhere.

SILK CULTURE IN CALIFORNIA.

San José, Cal.—L. Prevost, the pioneer silk-culturist of the Pacific coast, writes as follows in a recent letter to the Commissioner:

"The success of all those who have engaged in silk culture in different parts of California is a proof that the whole State is adapted to that great industry; but the extraordinary success of three persons in Los Angeles county surpasses my most sanguine expectations and all I have said about that culture. Finding the report so extraordinary, I went there to see, and found everything as stated. Believing that this locality would be the silk center of the Pacific coast, I moved my mulberry trees down there, and made two large plantations. I brought back with me mulberry shoots of one year's growth 14 feet long, to show the capacity of the soil. There are millions of acres of this rich mulberry soil, giving ample room for all wishing to engage in the culture. The climate is very healthy, and the finest I have seen. Mr. Garey planted, in February of last year, 10,000 cuttings, in nursery style, on one acre of land, and began to feed from these cuttings in May following. During the season he fed 120,000 worms, which gave 120,000 good cocoons—as here every worm makes its cocoon. After the feeding and raising of his 120,000 cocoons, his cuttings were in the fall five to twelve feet high. Where is the country that can beat that? There is nothing on record in any silk country approaching such results. Many will not believe it, but if they will come here they will find out that it is so.

"As my object was to be useful to my country, you have no idea how happy I now feel to see my productions, and, in fact, all I have said in favor of that rich industry, so far surpassed by the reality. I have hope now of seeing the United States *exporters* instead of being importers of silk. The success of the few men in southern California has led others to the establishment of a great many plantations there, and many persons are preparing for the next season. It is my opinion that next year all those who will be deceived by that big humbug of *white* pine will turn their attention to this direction, as being the surest and safest employment, as all will have the same chance, and it will last for them and their children, and instead of ruining their health, will improve it."

GRAPES IN TEXAS.

High Hill, Fayette county, Texas.—At the January meeting of the Agricultural Society of this place, Mr. G. Fiedler reported that he planted 300 grape cuttings in ditches, plowed out and shoveled five feet wide and two feet deep, then filled up with different sorts of manure, including 30 head of dead cattle which he happened to have at hand, corn stalks, &c., at the bottom, with earth at the top. The cuttings grew the first year (1868) to the length of 10 to 12 feet, and many of them to the thickness of half an inch. A most remarkable feature was that several vines grew blossoms in August and formed regular grapes, which, however, could not more than half ripen before winter set in. These cuttings

were planted one by eight feet, the vines being led along a frame made of cedar posts and wire. At the March meeting, Mr. Fiedler stated that his vines were growing magnificently, and on the 28th were loaded with blossoms. The vines were trimmed in December and were fastened to the frame.

A large quantity of comparatively good quality mustang wine was made in this neighborhood last year, and a very good product might be obtained with more thorough knowledge of the treatment and better arrangements. Hundreds of barrels of grapes were left ungathered.

GRAPES IN TENNESSEE.

Montgomery county, Tenn.—I am much interested in propagating a native grape found close to me. It is the most delicious grape I ever ate. There is a large vine on a large oak five miles from me that has been bearing 40 years without fail, and has been a noted vine during all of that time. I have two young vines from it, which will fruit next year. All I now know of it is its fine-flavored fruit and its certainty in bearing. If it should meet expectations it will be an invaluable acquisition.

PEPPERMINT CULTURE.

Wayne county, N. Y.—Peppermint is the rage this season. Every other crop is neglected for "mint" with a very large majority of farmers in this town. There is at least four times the usual quantity planted this year, and the crop promises well. Last year the yield of oil was extraordinary, the yield being generally 40 pounds per acre, sold at from \$4 50 to \$5 per pound. It is estimated that there are over 1,000 acres of mint planted in this county.

THE MILK BUSINESS IN MASSACHUSETTS.

Berkshire county, Mass.—There are more cows kept in this county than in years past, the milk business being better now than sheep and wool ever were. Sending milk to market is a thriving business—much better than making it into butter or cheese.

LARGE CALVES IN VERMONT.

Orleans county, Vt.—Large calves seem to be made a specialty in this town just at present. Amasa Scott sold one to the butcher a few days since, 15 months old, whose live weight was 824 pounds, dressed weight 543 pounds, for which he was paid \$59 92. He has another, 12½ months old, which weighs exactly the same; and there are as many as 10 others in town that will average quite as large; one raised by my son, E. L. Hastings, 15 months old, that will weigh more than 1,100 pounds; and there are more than 20 this spring's calves that are quite as large of their age as the yearlings described above. These calves and yearlings are mostly grade Durhams.

TIMBER AND HEDGE PLANTING.

McLeod county, Minn.—An increased interest is being taken in planting trees on our prairies. The value of a prairie farm remote from timber can be increased 50 per cent. in five years by a small expenditure in planting and taking care of trees.

Cherokee county, Iowa.—There is much interest taken in planting timber

this spring. The white maple and cottonwood seem to be the best and fastest growers. Seed of maple can be gathered in June by the bushel, and cottonwood grows from cuttings.

Story county, Iowa.—For fencing or hedging we are planting the English willow nine inches apart, double rowed, lattice fashion. It is worth more to Iowa than a railroad. The cuttings should be four and a half feet long, sharpened at the lower end, and driven into the ground 12 inches. The longer you can get the cuttings the better.

THE GOLD WINTER IN FLORIDA.

St. Augustine, Fla.—The destructive effects of the terrible freeze of Christmas eve and morn of 1868, in Florida, are worthy of careful note and record in as many fruit locations, and as widely as possible, for the benefit of future fruit culturists in the south. It differed from the severe freeze of February, 1835, when the mercury sunk to 7 degrees above zero, and all kinds of fruit trees were killed to the ground, yet that cold was more local and less general than the late freeze.

In 1835 the severity of the freeze did not extend below 27 degrees north latitude, while the late cold extended as far south as Key West, in 24 degrees north latitude, where a heavy black frost was experienced, and it is said that ice formed on the north side of the island of Cuba.

The freeze of February, 1835, occurring later in the season, when the sap had begun to ascend and the young growth and blossoms had begun to make their appearance in the orange and other like kinds of fruits, the trees in this forward condition were more susceptible to injury than at Christmas, 1868, when loaded with the ripe fruit of the previous season's growth; hence with the orange and a few others of that family of trees the crop of fruit which was frozen solid upon the trees was the most serious loss. But among that tribe of fruits we have to report the citron, heretofore believed to be hardy, together with the lime, the Sicily lemon, the rough or sweet-skinned lemon, and also the guava, the custard apple, the banana, and the pine-apple, besides many other shrubs, plants, and flowers, have been killed to the ground by the freeze of Christmas last, although the mercury in the thermometer did not sink below 20 degrees above zero at St. Augustine. The loss of oranges and lemons that were unpicked and frozen upon the trees was very large, probably near 10,000,000. Added to this must be a large proportion of the recently budded trees, that had not attained a firm establishment in their new situations to enable them to resist so severe an attack of the cold, and probably three-fourths of all the buds set last year, and many of the newly set trees, were killed.

Among the fruits that withstood the severe cold may be reckoned all the varieties of the orange, the Valencia lemon, (an excellent variety,) the sweet lime, and the shaddock. All these, on thrifty and well-established trees, have proved themselves hardy, only shedding their leaves, which are now coming out again luxuriantly, and both foliage and blossoms give promise of a good crop of fruit the coming season.

LABOR-SAVING IMPLEMENTS IN MISSISSIPPI.

Holmes county, Miss.—We have been trying to introduce labor-saving implements by using them ourselves, and thus saving much labor. We planted our crop, both corn and cotton, with the improved King cotton planter, and though our corn was drowned out in April, we planted all over in such an incredibly short time that we could scarcely realize it. We planted in two days double the amount in cotton that was

planted by three hands in three days last year, and the stand is beautiful and regular. Our corn we are cultivating with a patent double-shovel plow. We have a horse hoe and a cultivator that we intend using as necessity demands. My brother, myself, and a lad 16 years old are cultivating 15 acres in cotton and 15 in corn, and are not behind our neighbors—in fact, in advance of some of them. Besides this, we have a truck patch of vegetables, &c.

MINING IN ARKANSAS.

Benton county, Ark.—Valuable mineral ores have been recently discovered in various parts of the county in great abundance, supposed to be principally silver. This mineral, be it what it may, is inexhaustible. The people are gathering here and organizing companies, and are laying off the mineral regions in districts and locating their claims, and have gone to work.

SHEEP AND HOGS IN OHIO.

Stark county, Ohio.—The following were the official returns of the assessors of sheep and hogs in this county for the years 1868 and 1869:

	1868.	1869.
Sheep	159,781	112,516
Hogs	29,118	23,557

In Tuscarawas county, south of us, the rate of diminution is about the same. In Wayne county, west of us, the diminution is greater.

FARM STOCK IN OREGON.

Marion county, Oregon.—The increase of farm stock has been fully an average the past season. Horses might be marked 10, and prices range from \$50 for a good Indian or Mexican horse, to \$300 for a first-class draught-horse which will weigh 1,400 to 1,600 pounds; the latter being eagerly sought after for California market, as are also first-class driving horses, which range from \$150 to \$300 each. A fair span of medium work-horses for farm labor can be had for \$250.

Cows sell at \$25 to \$50 each, according as they are wanted for dairy purposes in western Oregon, or for stock-raising east of the Cascade mountains. Two-year-olds sell at \$14 to \$18, and yearlings at \$8 to \$12 per head. Sheep sell at \$1 to \$1.50 per head, after shearing. Wool (unwashed) is 20 to 21 cents per pound. Hogs (store) sell at 2½ to 3 cents live weight. These prices apply to western Oregon. Sheep and cattle are rated higher east of the Cascades, whither they are driven in large numbers every spring for stocking the immense ranges in that region. There are also large droves purchased for Idaho and Washington Territories, and for California also, in which State the ranges which were depopulated of stock during the drought of 1864 are now being restocked. Indeed, stock-raising in that State seems to feel the same impetus which is discernible in every branch of agriculture all along the Pacific slope.

BLIND STAGGERS.

Winston county, Miss.—I see from your monthly report for March and April that many horses have died of blind staggers. I have, during my life, lost several horses from the same disease, and I am fully satisfied it was by my own fault. When I first moved to this county, in

1836 or 1837, I purchased a lot of corn raised on newly-cleared land; it was late planted, small ears, very light corn, worth but little, and badly worm-eaten, with much worm-dust in it. I fed it to my horses, and in a short time one or two were taken with the staggers. I then had a trusty old negro man to shuck the corn, and free it from all worm-dust by breaking off some of the small end and scraping out all the dust in the rows, with a knife. I then continued to feed with the corn, and gave my horses nearly twice the quantity in bulk that I usually gave of good corn, and my horses did well, having no more staggers. I have several times neglected to see to this, and my horses were affected with staggers, but I have never had a horse affected with staggers except when he had eaten corn with worm-dust in it. I have never fed with corn having much worm-dust in it without my horses having staggers. New ground corn is said to give horses blind staggers. New ground corn in all newly settled countries is generally planted late, and all late-planted corn is more liable to have worm-dust in it. I have observed that my horses always do well on new ground corn if freed from worm-dust and enough is given them, and I have no fears of the staggers if my corn is freed from worm-dust; but I believe a horse will be almost sure to have staggers if fed on worm-eaten corn with the dust in it. I have heard of horses having staggers from grazing on grass where the army-worm had been, and have been told that the dust, wet with saliva and bound to the skin, will produce a blister. I do not know that this is true, but believe that nearly all cases of blind staggers are produced by the worm-dust in corn, and that it would be scarce if horses were never fed with it. The corn should always be freed of the worm-dust before taken to the stables, and none suffered to fall in the trough in which the horse is fed, and the cobs should be thrown away and the trough kept clean of all dust. I think blind staggers and sleepy staggers are produced by the same cause.

DISEASES AMONG STOCK.

Harrison county, Iowa.—Very little disease prevails among cattle here, although quite a number died last fall soon after being turned into the stalk-fields. Many attributed their death to eating smutty corn, but the symptoms of all I saw were in many respects different from those which I saw that died from eating the poisonous smut. A little care will prevent much loss. Before cattle are turned into the fodder-fields they should be allowed to drink well, and then for three or four days they should not remain in more than three hours each day. They should have hay or straw to nibble on during all the time they may be so pastured, and also all the salt they want, fresh water being kept within their reach at all times. I have practiced this method of late years, and have never, since adopting it, lost a hoof from that supposed cause.

Marion county, Oregon.—Dr. Morgan, of Aumsville, in this county, has lost about 30 head of young cattle by a disease entirely new in that locality. Upon opening the cattle after death, the arteries of the lungs were found filled with worms from $1\frac{1}{2}$ to 2 inches in length, and as thick as a darning-needle, sharp at both ends, of a dull color, and semitransparent.

Hillsborough county, N. H.—The weather has been cold and the season backward for planting. Cows have dropped their calves prematurely, to an extent seldom if ever known here before.

Marshall county, Ala.—Since my last report the hog cholera has prevailed extensively in this county—loss perhaps 25 per cent. A great many have lost almost their entire stock. The hogs die in from

two to four days. No remedy has been found. To separate the well from the sick I do not think does any good, as this has been tried. There seems to be a difference in the symptoms: some will eat while others will not; some die apparently in good order, will eat as well as any, and all at once will stop eating, go off, lie down, and expire. Tar has been the best preventive, but in my opinion there is nothing that will effect a sure cure.

Clay county, Ill.—The hogs have died in various parts of Clay county with what is called cholera. Microscopic examinations have in some instances proved that the deaths came from trichina. Would it not be well to encourage more perfect and particular investigations of all diseases of cattle and hogs? Remedy or prevention might be suggested by such means. A child 12 years old, six miles north of this, died last month from trichinosis. We found the trichina in astonishing numbers by dissection and the microscope.

“Chicken cholera” is probably the effect of trichina.

Union county, Indiana.—There has been great loss of pigs, on some farms as high as 80 per cent. Poultry dying on the same farms.

Hickman county, Kentucky.—Hog cholera prevalent.

Knox county, Tennessee.—Cholera among the hogs is proving more fatal than usual.

Dyer county, Tennessee.—Cases of hog cholera frequent, and loss considerable, perhaps one-half the stock.

GRASSHOPPERS AND CATERPILLARS.

Harrison county, Iowa.—The grasshopper eggs which were deposited last fall have hatched out, but from present appearances are not numerous to do any great amount of damage. The blackbirds are taking them up most splendidly; every day may be seen thousands of these noisy fellows, in great droves, hovering over the fields, alighting at one end, passing and repassing, gobbling up all that lie in their way, showing that they, in a measure, will pay for the damage they do in the fall to the green corn. There is no sure way of preventing the ravages of the grasshoppers when they are as numerous as they were here last season. Ditches and fires would have been of little use. Late fall plowing is beneficial in destroying their eggs. I, however, saved a small piece of corn (about 10 acres) by cutting a piece of brush adjoining it. When the leaves were coming out, the grasshoppers left the corn for the wilting brush, and remained there until ready to fly away. They even passed through the corn from more distant ground to this place, and in their march did the corn no harm.

Monrovia, Kansas.—The grasshoppers are, like the corn, growing slow, but the “crop is sure.” They are destroying spring wheat, oats, barley, and early potatoes; all the gardens where they are or have been plentifully hatched out are eaten up. They seldom lay eggs on uncultivated land. The commons, old roads, along railroads, old waste fields, &c., on the summer side, are their favorite hatching grounds. They can deposit their eggs in the hardest beaten roads, and seem to seek beaten ground. They take marches every clear day, but they will not cross a stream much wider than they can jump, but if they get into the water they never drown; they kick on and over like the water spider. Comparatively speaking, I do not now think their ravages will be extensive. They are not found, I learn, beyond 11 miles west of Monrovia—say 30 miles west of Atchison. If none come in after those now here are on the wing, we will be free from them next year, as those here now will lay no eggs here.

When they march, they all seem to understand the direction at once. Last Saturday, they all at once, about 9½ o'clock, commenced a march in a field about 75 rods long, part in fall wheat; they were scattered all over the field, and yet at one time they were on the march the whole length of the field, and all were going the same direction in parallel lines. Their course was a little south of east, and the ground was literally covered with them, and when the front ranks approached the creek, and the rear came up, there were bushels of them. I set fire to some old grass along the stream and destroyed immense numbers of them. Fire, if it does not char them, leaves them red.

Monrovia, Kansas.—At about 11 o'clock this morning the grasshoppers came through an uncultivated field and orchard and attacked my spring wheat, which was growing finely; and by 4 o'clock one-third or more of the field was as bare as a summer fallow field; every blade in their line of march was devoured; the ground under them was left bare, except their excrements. The breadth occupied going forward was about 12 feet, looking black with the crawling, loathsome insects. They are small, and black or striped, with a grayish tinge. They have no wings yet, and can be driven like a flock of geese. I had a furrow drawn a few feet ahead of them, and when they crawled into it, a furrow was thrown upon them. Millions were thus buried, but many escaped by lively jumping.

Independence county, Arkansas.—A kind of caterpillar appeared in this county last year, in the latter part of April, fed chiefly upon the black oak, and disappeared in May. It has come something later this season, in incredible numbers, and forests of oak of 100,000 acres in this county are stripped of almost every leaf. They seem so wonderfully destructive that one can but shudder to contemplate the consequences to man and beast, should they once attack the grapes, fruits, and cultivated crops.

STEAM PLOWING IN NEW JERSEY.

An interesting trial of one of the Fowler double-acting steam-plows has just occurred in Burlington county, New Jersey, upon a tract of 32,000 acres owned by Colonel William C. Patterson, of Philadelphia. Several hundred acres were planted in beets in 1868, with a result so successful that the proprietor determined to initiate and undertake the manufacture of beet sugar upon a large scale, and is making arrangements of a magnitude commensurate with the extent and importance of the undertaking.

The Commissioner of Agriculture was present during several days' plowing, and returned more than ever convinced of the practicability and necessity of introducing steam generally in the culture of all lands in the country adapted to this improved mode of culture.

The gang of plows consisted of 12, six operating at a time, driven by two 14-horse power engines, one at each end of a series 60 rods furrows; the breadth cultivated at one movement was 78 inches, the depth 8 inches, and the furrows were laid with faultless regularity, at a rate of speed which would insure the perfect plowing of at least 18 acres per day, and under very favorable circumstances 25 acres. The machine was guided easily by one man, and reversed at the end of the furrow without a moment's loss of time. The surface was rough, though the soil was a sandy loam, easy of cultivation.

Two other steam-plows of the same manufacture are already in use

in this country, one in Louisiana and one in the west. The successful use of these machines must stimulate the introduction of others, or, better still, the more perfect adaptation by American inventors of steam cultivating machinery to the wants of American agriculture. It should be remembered that the principle upon which this machine is built was first applied in an American invention of more than 30 years ago.

It should be mentioned that Colonel Patterson has also in view the feeding and improvement of stock, and to this end he has already obtained a large number of English mares of the most approved blood, for breeding purposes.

THE STEAM PLOW IN LOUISIANA.

The Fowler steam plow introduced into Louisiana by Mr. H. E. Lawrence, and described in the Annual Report of this Department for 1867, is now in successful operation on the Magnolia sugar plantation, about 40 miles below New Orleans. An eye witness of its operations at date of March 18, 1869, says:

At the time we saw it they were subsoiling between rows of cane planted seven feet apart, last fall. They were running six coulters at once, three on each side of the cane row, the outer ones six feet apart, the next two four and a half, and the inside pair three feet. The foot of each coulters was about the size of a large man's hand, and the main shaft of the coulters was simply a solid bar of iron crooked to the right curve and angle.

The foot of each of these six coulters went from 20 to 25 inches beneath the surface, and broke up the whole under-strata of clay to the width of more than six feet. We measured the depth and width with a tape line which we had with us.

Though the soil is an exceedingly stiff clay, no surface water remained in the 20 to 25 inches pulverized by the cultivator. The proprietor of the plantation believes that this subsoiling, with fall planting, will secure a good stand and prevent rot in winter; that the avoidance of injurious packing of the soil by the treading of horses and mules will prove a great advantage; and that a saving is effected of half the after-working formerly required, and at least half a hogshead of sugar per acre added to the crop.

The soil is turned to the depth of 12 to 14 inches in the fall and winter plowing. Two hands suffice to manage the plows and engines. One of the engines was run by a negro boy, 14 years old. In harrowing, an implement 16 feet wide, with teeth two feet long, is employed.

FRUIT CULTURE ON THE MISSISSIPPI RAPIDS.

Mr. Thos. Gregg, secretary Warsaw (Illinois) Horticultural Society, writes as follows upon the subject above named:

The soil and climate of this county, Hancock, particularly the bluff timbered lands bordering on the Mississippi, we regard as well adapted to the growth of most varieties of fruits. The subsoil is a calcareous clay, overlying heavy deposits of limestone. The timber growth is principally the oak, hickory, white and sugar maple, walnut, butternut, cherry, elm, mulberry, ash, &c., with an undergrowth of plum, crab apple, grape, blackberry, raspberry, and hazel. Most of the cultivated fruits grow well, and our people are daily becoming more awake to the fact, and are beginning to plant much more than formerly. Apples and grapes it is believed will take the lead, though many other fruits are being planted quite extensively. Formerly, when the early settlers began to plant, many failures occurred, chiefly from want of knowledge of varieties; hence the conclusion was reached that orchards could not succeed. Later experience has taught observing nurserymen and orchardists what to grow and to plant, and now, while large numbers have been discarded, the supply of the tested varieties is equal to the demand.

Apples.—The most popular apple now in this region, and the one most sought for market planting, because of its fine appearance, and the hardiness, and adaptability and good bearing qualities of the tree, is the Ben Davis. (Synonyms Red Pippin, New York Pippin.) While this is a good apple for cooking and eating, it is decidedly inferior to such apples as the Baldwin, Roxbury Russet, and Bellflower; yet it sells, and can be produced 20 to 1 of these—the chief consideration in the money point of view. Our next most popular winter sorts are Winesap and Rawle's Janet. These, with a few others, such as Jonathan, Rome Beauty, Peck's Pleasant, and Hubbardston Nonesuch, are about all the winter varieties necessary in an orchard for family use and market. Of fall apples Rambo, Maiden's Blush, and Fall Wine, are most popular. The best summer varieties are Red June, Early Harvest, and Red Astrachan.

Of course others are quite extensively planted, many of them *on trial*. One of my neighbors, President Hammond, of the Warsaw Horticultural Society, in an orchard of over 2,000 trees, has no less than 90 varieties.

Peaches.—Of these the propagated sorts grown here, and, as I believe, everywhere, are less hardy than the seedlings. Hence, of late years, much attention has been given to the selection of the best seedlings, many of which are known to reproduce themselves with little variation. Many fine sorts have been produced from the seed.

This being near the northern limit of the peach region, our crop is not very certain. We have had three good crops, however, within the past four years, including 1868. The prospect for 1869 is not at all flattering.

Cherries.—Early Richmond and common and English Morello are the most certain, and do well here. Many of the more tender though finer varieties have been planted from time to time, but can be recommended only in peculiar situations, as our climate has proven to be too severe for them.

Grapes.—There are large quantities of grapes grown in this county, the greater portion of them in the vicinity of Nauvoo and Warsaw. Catawbas largely outnumber all others, though latterly other varieties are being planted to a considerable extent—the Concord, Clinton, Delaware, Hartford, Iona, Ives and Norton's Virginia, being chief among them. The Catawba has done better this year than for several years before, and is still thought by many to be our best and most reliable wine grape. The Clinton is gradually advancing in public estimation as a wine grape, while the Concord still stands No. 1 as a grape for the million.

Small fruits have not yet become very extensively planted here, though their culture is increasing. The Lawton blackberry proves to be rather tender for our changeable climate; Kittatinny and Missouri Mammoth, but little tried as yet, are said to be harder. Of raspberries, Doolittle's Improved Black Cap, Purple Cane, Golden Gap, Miami, Ohio Everbearing, and one of the many Red Antwerps, are all grown with varying success—the Doolittle being the most reliable. Houghton's seedling gooseberry, and Red and White Dutch, Cherry, Victoria, and White Grape currants are planted. Among the strawberries Wilson's Albany still holds a pre-eminent rank, though the Agriculturist, Green Prolific, Jucunda, and a few other sorts are inquired for.

Though well adapted to the cultivation, our region seems also to be the home of multitudinous insect enemies. So that, what with the curculio, the codling moth, the canker-worm, the bark-louse, the army of borers, and the thousand and one other insects and creeping things, not forgetting mildew and blight, that devastate and prey upon our fruits, fruit-growing is getting to be a rather hard road to travel. Here, as elsewhere, the law has been promulgated, "Eternal vigilance is the price of fruit!" In the unceasing struggle for existence, which pervades both the animal and the vegetable kingdoms, man is not exempt, but is compelled to take a part. With him destruction precedes enjoyment. He must destroy the noxious plants and the insect depredators in order that he may enjoy the fruits of the garden; but the battle is likely to prove a serious one. With all man's skill and science, and with his vastly superior physical ability, it really seems as if the worm and the bug were likely to obtain the mastery, and retain possession of the field.

We must become closer observers, and be more precise and thorough in our experiments. Nothing is settled, nothing is known, nothing is absolutely demonstrated. All is theory! We are a nation of theorists, and in nothing is that fact more observable than in our horticultural literature. One advances, another denies, no one demonstrates.

Divide and conquer is good strategy in war; we must use it in our contest with the insect tribes. We must ascertain which are our friends and which are our foes, and we must use the friendly tribes in carrying on our warfare against those that are enemies.

PROGRESS OF COLORADO.

Geographers have generally informed the world of the existence of a great American desert stretching westward from the Missouri to the mountains; and the impression has been given that the whole Rocky

mountain system is an inhospitable if not impenetrable waste. Such ideas have been rudely dissipated by the stubborn facts of recent history; yet the true character and capabilities of the western half of this continent are only partially known and by no means fully appreciated.

A few statistics obtained by the Southern Colorado Board of Trade will illustrate the agricultural capabilities of the mountain valleys. El Paso county includes the valley of the Fontain qui Bouille and its tributaries; Conejos is in the San Luis Park, on the Rio Grande river:

EL PASO COUNTY.

	Amount.	Value.
Number of acres under cultivation	8,766	\$86,100 00
Number of acres suitable for cultivation	21,663	155,073 00
Value of ditches for irrigation		16,908 00
Number and value of cattle owned	5,746	193,319 00
Number and value of sheep owned	6,840	25,920 00
Number and value of hogs owned	532	6,568 00
Number and value of horses owned	509	52,714 00
Number and value of mules owned	106	16,725 00
Number bushels corn raised	22,515	24,500 00
Number bushels small grain raised	51,444	51,444 00
Average bushels corn per acre	30	
Average bushels small grain per acre	40	
Number sacks flour manufactured	6,090	30,450 00
Number pounds of wool produced	13,680	2,735 00
Number fruit trees cultivated	480	500 00
Number gallons native wine made	2,280	6,840 00
Number pounds butter made	85,402	42,701 00
Number pounds cheese made	10,800	2,700 00
Value farm improvements		167,095 00
Value farming implements		24,715 00
Average cost of keeping cattle per head per annum, \$3		
Average cost of keeping sheep per head, 50 cents		
Number pounds freight received	1,968,600	
Amount paid for freight		95,013 00
Value lumber made and sold		110,000 00
Value gross sales merchandise		94,250 00
Total value		1,206,774 00

CONEJOS COUNTY.

	Amount.	Value.
Number acres under cultivation	3, 000	\$30, 000 00
Number acres suitable for cultivation	100, 000	125, 000 00
Value of ditches for irrigation .....	.....	10, 000 00
Number and value of cattle owned	5, 650	154, 000 00
Number and value of sheep owned	200, 000	400, 000 00
Number and value of hogs owned	1, 227	6, 335 00
Number and value of horses owned	989	74, 175 00
Number and value of mules owned	475	65, 500 00
Number bushels small grain raised	15, 000	15, 000 00
Number pounds wool produced	400, 000	40, 000 00
Number pounds butter made	5, 000	3, 000 00
Number pounds cheese made	2, 500	700 00
Value of improvements on farm .....	.....	120, 000 00
Value of farming implements .....	.....	6, 000 00
Average cost of keeping cattle per head per annum, \$1 50 .....	.
Average cost of keeping sheep per head per annum, 25 cents		
Value of lumber made and sold .....	.....	4, 500 00
Number pounds freight received	300, 000	
Amount paid for freight .....	.....	25, 000 00
Value gross sales of merchandise, including such as sold to employees .....	.....	150, 000 00
Total value .....	.....	1, 230, 210 00

If the above statements are correct, it is evident that these valleys are remarkably fertile, and that it pays to irrigate. In El Paso, the cost of irrigation is about one-fifth of the value of the area in cultivation; in Conejos, one-third; \$2 per cultivated acre in the former county, and \$3 in the latter. The average yield of small grain in El Paso is 40 bushels per acre, and 30 bushels of corn, giving a money return of \$40 per acre of small grain, and \$32 40 of corn. This is about double the average return of the United States for lands in small grain.

The reported cost of keeping cattle and sheep fails to deepen impressions of inhospitable climes and sterile lands. Three dollars per head for keeping cattle and 50 cents for sheep indicate a possible exemption from starvation gratifying to prospective emigrants to Colorado. An assessed valuation of farm stock, in a new and thinly settled county, amounting to \$295,000, is at least a promising beginning, while 85,402 pounds of butter and 10,800 pounds of cheese, as a commencement of dairy operations, may prove an earnest of a great future for dairying in a region of such purity of atmosphere and salubrity of climate.

VALUE OF SEWAGE DEPOSIT OF THE CITY OF WASHINGTON.

The broad and sluggish canal on the northern border of the public grounds west of the Capitol, in this city, is a source of much annoyance, it being the outlet of the sewerage of the city, full or empty with the flow or ebb of the tide, with a consequent tendency to fill with mud, the color and odor of which give vivid and strong impressions of fertility, which are not sustained by chemical analysis. The question of sewage is an important one, and this chemical examination may possess a gen-

eral interest, though it should be observed that the fecal matter of a large portion of the city does not go into the sewers. The Commissioner of Agriculture, desirous of ascertaining the economic value of the canal deposit to correct false impressions of the practicability of its utilization, caused a chemical examination to be made in the laboratory of the department, which shows that while the canal is an injury to the health of the city, its deposits are scarcely worth freighting even to the smallest distances.

The report of the chemist is appended :

WASHINGTON, D. C., May 31, 1869.

SIR : In accordance with instructions received from you, I have made an examination of the mud of the canal, and submit the following report :

The mud was collected close by the foot-bridge leading to Thirteenth street, at low water, and when allowed to settle in the pail, had a thin layer of water separated from it. This was filtered off, and the remaining mud was then examined. It had an odor rather of vegetable than animal decomposition—was strongly alkaline to litmus paper, not removable by heat. The specific gravity of the soft mud was 1.412; distilled water being 1.000.

The following represents its composition in 1,000 parts :

	1st experiment.	2d experiment.	Average.
Moisture.....	523	551	537
Dry matter.....	477	449	463
	<u>1,000</u>	<u>1,000</u>	<u>1,000</u>
Dry matters :			
Inorganic matter.....	465.	437	451
Organic matter.....	12	12.2	12.1
	<u>477</u>	<u>449.2</u>	<u>463.1</u>
Inorganic matter :			
Sand, angular quartz, and reddish clay.....			415.00
Phosphate of lime, with peroxide of iron.....			2.00
Alumina (8.00) and phosphate of iron, (0.12).....			8.12
Lime, carbonate.....			3.72
Magnesia.....			0.16
Sulphuric acid.....			2.00
Chlorine (of common salt).....			2.56
Soda and potass.....			3.44
			<u>437.00</u>

From the foregoing it appears that the mud as collected contains 50 per cent. of water. It should lose about 30 per cent. of this before it would be in a condition sufficiently dry to render it portable or fit for use. If dried by evaporation or otherwise, down to 25 per cent. of water, then the 75 parts of solid matters would contain, according to the above analysis :

Insoluble sand and silicates.....	71.25
Saline matter in solution.....	3.75
	<u>75.00</u>

As the 71½ parts of sandy matters are of no value as a manure, there would remain only 3¾ per cent. of matters of any value in this respect, which substances could be purchased at a cheaper rate, or made from materials more readily attainable than by the manipulation of so bulky a material with so little manurial value as this deposit of the canal.

With its present percentage of fluid, this mud contains in every ton not quite 4½ pounds of phosphate of lime, 8½ pounds of carbonate of lime, 4½ pounds of sulphuric acid, and almost four pounds of common salt. The alkaline salts present amount to 7½ pounds. These are the only substances of value. The money estimate of these may be thus expressed :

4½ pounds phosphate of lime, at 2½ cents per pound.....	\$0 12
8½ pounds carbonate of lime.....	5
4½ pounds sulphuric acid, at five cents.....	23
4 pounds common salt.....	8
7½ pounds salts of potash and soda.....	50
Total.....	<u>98</u>

The value to the farmer of a ton of this manure in its present state is thus 98 cents, at its highest value. Of this the ammonia compounds are worth about 12 cents, and the rest is highly valued at 86 cents. This 98 cents' worth is contained in 25 pounds weight, to obtain which the farmer would have to haul 1,300 weight of water and 800 weight of useless sandy clay.

The organic matter, amounting to about 27 pounds in the ton, consists chiefly of vegetable debris, fibres and minute vegetable growths of brackish water—*confervæ* and *algæ*—yielding very minute traces of ammonia, and furnishing by decomposition carburetted hydrogen, with a very faint trace of sulphydric acid. This portion of the mud cannot be considered to be of much value, being readily supplied by the use of many artificial compounds.

The mud of the canal is chiefly made up of the wash of rain and city water supply of the streets, combined with the backing up of the tidal stream acting upon it. At low water the sewers pour out their contents, which flow in lazy channels *through* the mud, not *over* it; and when the tide rises it flows into the sewers and dilutes the sewage and carries it away, so that it is almost wholly lost as a fertilizer to the mud; the mud, therefore, differs but slightly from the mud of a stream unpolluted.

The sun and air acting on the exposed mud with its vegetable matter produce decomposition whenever the temperature of the air is sufficiently high to favor it—that is, above 70 degrees Fahrenheit—and hence in summer this is always going on at low tide; and as at this season southerly breezes prevail, these emanations are carried over into the city and become potent causes of disease; and it becomes the duty of the Board of Health and corporate authorities to abate this nuisance as soon as possible. This can be accomplished in the simplest manner by narrowing the canal by forming a closed sewer at one side of it, into which the city sewers may empty and be conveyed some miles further down the river; this could be readily done if it be deemed desirable to preserve the canal as a commercial thoroughfare.

The sewer water differs but little from Potomac water, of which it is in dry weather almost wholly made up; in rainy seasons the rainfall delivers into these channels, and thus dilutes the sewage. The fluid is alkaline, acting strongly on litmus paper, which reaction is mostly produced by salts of potass and soda—mainly the latter—derived from the soap-water of sewage. Much of the odor of the sewage is derived from this ingredient (soapsuds) in contact with sea-water and at high solar temperatures. The ammoniacal contents are very slight, the sewers containing only a small amount of the animal fluids of the city, which are so diluted by the abundant use of Potomac water and the occasional large rainfalls that it has no ammoniacal odor and but faint volatile reaction. The specific gravity of the fluid as it leaves the sewers is 1.0002, (June 1, temperature 72°,) and it yields 16 grains of solid matters, dissolved, in the gallon. Such a fluid cannot enrich any compound with which it may be mixed; it is valueless as a manure on account of the cost of transportation. This examination is interesting, as it confirms the opinion expressed everywhere in European cities, (where the city water flushes the sewers,) regarding the futility of the expectation entertained by some persons of the conversion of sewage deposit or sewage liquids into a valuable manure, which might render us independent of guano or other foreign or home manures. In its present state the deposit is not a portable manure, nor does it contain the ingredients which would form the basis of an economical or valuable manure. It is neither more nor less than sand or street mud, diluted with a very weak alkaline solution, and having most of its valuable matters sifted out and carried away by the tide.

It is a great injury to the health of the community where sewers are made the means of the removal of animal exuviae of the city, and although there is but a small amount of such in the sewage of this city, yet it is by so much injurious, inasmuch as these matters are not immediately removed by delivery into the canal or river, but are delayed for a time at the point of emptying, and thus become sources of infection to the city. In conclusion, it appears that the city sewage is not valuable as a source of manure, because so highly diluted; and any calculations based upon a false idea of value, or any expenditure involved in attempts to form a manure out of our city sewage or canal deposit, must result either in a loss to the undertaker or be a great fraud upon the farmer and gardener; and it is evident that if the authorities—whose public duty it is to care for the health of the city—have no valuable commodity in the sewage which private enterprise would remove, it becomes their duty to take steps so that this imperfect and insalubrious mode of cleaning a city be not a continual cause of disease.

I remain, sir, respectfully,

THOMAS ANTISELL, M. D.,
Chemist.

Hon. HORACE CAPRON,
Commissioner.

LAND DRAINAGE IN CALIFORNIA.

During the past year an interesting example of drainage and reclamation of land has occurred in the case of Sherman's island, California, lying at the head of Suisun bay, between the Sacramento and San Joaquin rivers. The island is about 12 miles long and three miles wide, containing 14,000 acres, and having an alluvial soil of great depth and richness, capable of the most extraordinary production. As it has heretofore been subject to overflow at all high tides, as well as to devastation by occasional floods, very great disadvantage has been experienced in efforts at cultivation, and a large share of the land has been left to its native growths of rank grass and tule. But within the past year the proprietors of the island, organizing under provisions of a law recently passed by the State legislature, have undertaken the complete reclamation of their lands. The island has been surrounded by an embankment 47 miles in extent, averaging five feet in height, in the course of which 30 self-acting water gates discharge the drainage of the land. The cost of the works, including dams and levees for several sloughs, was about \$80,000. Entirely satisfactory results have been obtained in insuring the safety of crops and in enhancing the pecuniary value of the land. During the past year 4,376 acres of land were sold at an average price of \$12 69 per acre, the greater part having been put in market in order to meet taxes arising from the cost of reclamation. Very little land is now offered for sale. The anticipations of the present holders may in some degree be appreciated in view of the fact that in 1864, on one ranch fronting the Sacramento river, after the land had been cleared by fire, wheat was sown in the ashes of the burned surface-soil, without plowing, and produced a crop of 69 bushels to the acre. A subsequent "volunteer" crop produced 52 bushels per acre; and the third year, although plowed and sown late in the season, 15 acres of this land produced 50 bushels per acre. Statements not less remarkable are made respecting the growth of fruit and vegetables on other farms.

WHEAT CULTURE IN VIRGINIA.

Thomas S. Pleasants, of Petersburg, Virginia, writes to the department relative to the importance of the introduction of a new and earlier variety of wheat in that State, to insure exemption from the black rust, which he denominates the most formidable enemy their wheat-growers have to contend with. He says:

Our harvests commence, one year with another, about the 20th of June, seldom varying five days either way. If the wheat ripens before the 20th, it is liable to little injury from that cause; if later, it is always affected more or less, according to the humidity or dryness, the sultriness or coolness of the weather. In this climate June is an exceedingly precarious month. Our summers set in steadily about the 12th, though we have frequent hot days before that time; but from the 12th to the 20th it is almost uniformly warm, with frequent showers, and this we find to be the most critical period in the growth of the wheat plant. It is then that the air is full of the sporules of the rust-fungus, which, deposited in the wheat, either take root or are rendered innocuous, according to the condition of the atmosphere. The suddenness with which these fungi are sometimes developed is a matter of wonder and astonishment. I have seen whole fields that in the morning showed but little signs of rust, which were so changed in appearance before the setting of the sun as to look as if the shadow of a dark cloud rested upon them. This only happens after a series of days of hot, stifling weather, when the air is charged with moisture—a phase which the weather is very liable to assume at that particular juncture. Now if the premises attempted to be stated are accurately laid down, the conclusion appears to be inevitable, viz: that, in order to escape the

rust with any degree of certainty, farmers should seek for and cultivate those varieties of wheat only that come to early maturity. If, for instance, we had a variety that might be depended upon to ripen with a good degree of uniformity by the 15th of June, the accession of rust, except in peculiar seasons, would be anticipated.

In former years we had in Virginia two or three varieties of wheat which ripened at least 10 days sooner than any of those now in cultivation. Every old farmer probably remembers the "White May" and the "Red May." The former was sometimes, in favorable situations, (though not often,) cut the last week in May; generally, however, it was ready for the scythe by the 10th of June. It had the whitest, plumpest berry, and made the finest flour of any wheat I have ever known. It had a run of many years, and on rich ground was very productive, often yielding from 30 to 35 bushels to the acre. The Red May was quite similar, except in the color and in the strength of the stem, the latter not having body enough to support the weight of the ear, and was so liable to be prostrated by storms that it was never extensively cultivated. Neither of these varieties were ever affected by the rust.

It must be more than 20 years since any new variety of wheat has been brought into anything like general cultivation among us. Thirty or forty years ago we had a new variety almost every year, but most of them had a short run, and finally farmers settled down on the "Early Purple Straw" and the "Woodfin." That these have degenerated in consequence of careless management can hardly admit of doubt; at any rate, they have lost the quality of productiveness they once possessed. The best yield of grain I heard of last year, and on one of the finest estates on James river, did not exceed 10 bushels to the acre, nor was it very seriously impaired by rust. Formerly from 25 to 35 bushels per acre was not an unusual crop on the James river lands, and that on fields extending over hundreds of acres. As instances, I might specify the farms of Sandy Point and Shirley, owned respectively by Robert Bolling and Hill Carter. Mr. Bolling, from 800 acres, (500 clover fallow and 300 corn stubble,) reaped, one year with another through a series of years, 20,000 bushels of wheat; and Mr. Carter, though on a less, yet on a still extended surface, from 30 to 33 bushels to the acre. The Brandon, Berkley, and other farms about the same.

Thirty years ago I visited David Thomas, a distinguished agriculturist residing at Greatfield, near Cayuga lake, who told me that his farm took its name from the fact that in the early settlement of the country an immense clearing of several hundred acres was made in one year and seeded down in wheat. The product was 40 bushels to the acre throughout. At the time of my visit few crops averaged more than 20 bushels to the acre. Of late years, according to agricultural statistics, the average yield of the Genesee valley does not exceed 10 or 12 bushels.

What we most need in Virginia, to avoid the rust and to put wheat culture on a tolerably safe basis again, is to obtain a variety that will ripen very soon after the accession of summer heat, say by the 15th of June. Probably such a variety might be found in almost any of the fine wheat-growing districts of the United States. Nor need we despair of originating one possessing this desired quality, even from our own wheat fields, by a judicious selection of the earliest ripened ears, such as are found in every field at harvest time, a little in advance of the maturity of the average crop. By rearing from the same seed for a few years, and continuing the selection, a variety of a permanent type might be obtained which would prove not only a blessing to the country but a small fortune to the originator. It is by a similar process that all distinguishable varieties of wheat have been brought out.

This subject may well be deemed of sufficient importance to merit the attention of the Department of Agriculture. If left to individual enterprise, or even to agricultural associations, it may be long years before any valuable results, as applicable to the community at large, can be reached. If you can succeed in introducing among the farmers of Virginia a variety ripening early enough to escape the rust, with the additional merit of being productive, you will confer upon them an incalculable benefit.

IXTLE FIBER.

A letter has been received by the Commissioner of Agriculture, dated Harlem, New York, from Hon. J. McLeod Murphy, accompanied with three skeins of the ixtle fiber, or *Bromelia sylvestris*, each produced from a single leaf, of which a single plant might average 20. A package of hackled fiber of the same material is received, and another containing small samples of fishing tackle, which may be seen in the museum of the department. The following is the substance of the communication:

First of all, before I describe the plant and the method of its cultivation, I beg to call your attention to the extraordinary *length* and *strength* of the individual fibers, their susceptibility

of being divided almost infinitesimally without breaking, their flexibility without *kinking*, and the readiness with which they receive and hold vegetable or chemical dyes without being impaired. Since my return from Mexico I have had little or no opportunity of testing this plant practically; but some samples, such as I send you, were given to an old and experienced maker of fishing tackle, and he does not hesitate to pronounce the ixtle fiber as superior in every respect for the manufacture of trout and other fishing lines, not only on account of the readiness with which it can be spun, its extraordinary strength, but its perfect freedom from kinks when wet. The only secret, if there is one, consists in the preliminary precaution of boiling the fiber (as you have it here) before twisting it. In this one respect it will supesede the use of silk.

Apart, however, from its use as a thread, I hazard nothing in saying that it forms the best paper stock that can be obtained. I speak now in reference to the imperfect, withered, rejected, and dried leaves, from which the fiber cannot be conveniently extracted by the indifferent mechanical means that the Indians employ. Although I have no samples of paper made from this source just now at hand, yet I can assure the department that several magnificent samples of paper for banking and commercial purposes have been made by manufacturers in the eastern States, from the dried leaves of the ixtle plant brought from the neighborhood of Tabasco.

The samples of fiber I send with this were obtained by the most primitive means, viz., by beating, and at the same time scraping, the leaf of the plant (in a green state) with a dull machete. Then, after the removal of the glutinous vegetable matter, it is combed out and rubbed between the knuckles of the hand until the fibers are separated. The next step is to wash it in tepid water and bleach the skeins on the grass. This is the method pursued by the Indians on the isthmus of Tehuantepec; and the average product for the labor of a man is from four to five pounds per day.

It is scarcely necessary to tell one so well informed as yourself that this spontaneous product is the *Bromelia sylvestris*, which differs in some respects from the *Agave Americana*, the *pulque de maguety*, and *Agave sisalana* of Campeche; a difference arising solely from soil and climatic influences. The name *ixtle* is given to that species which is characterized by the production of the long fiber; and chiefly because the leaf, being shaped like a sword, has its edges armed with prickles, similar, in fact, to the weapon formed from *itzi*, or obsidian, used by the Aztecs. Hence the term. The *pita*, on the other hand, although obtained from a variety of the same plant, is a coarser and shorter fiber, which grows in the *tierras templadas*. The name comes from the word *pittes*, which is given to the plantations of the pulque plant in the uplands of Mexico. But the peculiarity of the ixtle is that it grows almost exclusively on the southern shore of the Mexican gulf, or in what is known as the "sota tento," that is to say, between Alvarado and Tabasco, and extending as far inland as the northern slopes of the dividing ridge which separates the Atlantic from the Pacific. The points generally selected for its cultivation are the edges of a thick forest, for which the small undergrowth is removed by cutting and burning. The roots of the plants are then set out at a distance of five or six feet apart; and at the end of a year the leaves are cut and "scraped." The chief object is to obtain a constant shelter from the rays of the sun, which would otherwise absorb the moisture and so gum the fibers together as to make them inseparable.

The average length of the leaf is six feet, and the time to cut it is clearly indicated by the upward inclination it makes. In other words, the radical leaves cease to form curved lines with their points downward, but stiffen themselves out at an angle as if to guard the source of efflorescence. When the ixtle is young its fibers are fine and white, but as it grows in age they become longer and coarser; and in a wild state the thorns are very numerous, but by cultivation they are diminished both in size and number, and in many instances there are none at all. Where any quantity of leaves require to be handled, a pitchfork would be very useful, especially if gathered for paper stock. A few days after cutting the sun would dry them out, the thorns would drop off, and then they could be easily baled. Independent of the great value which the ixtle has for textile fabrics and for paper, it possesses many valuable medicinal properties, to which I need not allude. It requires no labor to cultivate it, and no insect is known to feed upon it. It grows everywhere in the primeval forests of the Gulf coasts, and, in my opinion, is far superior to any of the grasses for textile fabrics. But as yet no mechanic has succeeded in devising a means of effectually extracting the fiber, and until this is done I presume that its real commercial value will remain unappreciated.

You will readily discover the superiority of the ixtle over the *jencquin** of Cuba, or the hemp which comes from Sisal and Campeche.

THE ESPARTO GRASS.

Two years ago efforts were made by this department to obtain information concerning this paper fiber, and to obtain seed from Spain for

* *Agave sebolifera*.

propagation. Recently official inquiries have met with the following response from the United States consul at Newcastle-upon-Tyne, England:

UNITED STATES CONSULATE, *Newcastle-upon-Tyne*, May 15, 1869.

SIR: According to your request I have instituted inquiries relative to the possibility of transplanting the Esparto grass for culture to America, and the economy of its use in the manufacture of paper.

I have communicated with Dr. Hooker, director of the royal gardens at Kew, on this subject, and with Daniel Oliver, keeper of the royal herbarium, both of whom have responded most kindly. I have also received communications from Spain and visited one of the oldest and most successful paper-mills of England, where the Esparto grass is exclusively used. There are important points of information that I have not yet received, such as the rainfall, degrees of heat and cold, &c., &c., of the best Esparto producing districts.

The soil best adapted to its growth is a very sandy soil, and slopes or hillsides (not too steep) are said to be the best, in a warm but not too dry climate.

This grass is gathered or harvested by pulling, not by the roots, but by a quick jerk of the hand to disjoint it above the roots, so as not to destroy the latter, and also to avoid a mixture of the hard, woody portion of the plant, which would have to be separated from the grass before suited for use at the paper-mill. The hands must be protected by heavy gloves, as the grass is very sharp. Considerable skill is required in pulling the grass without destroying the roots. If properly gathered there is no woody fiber to be rejected in the process of manufacture.

The grass is dried just as hay would be, and bound in bundles by ropes twisted from the grass itself, and then is ready for the paper-mill. It costs from \$20 to \$30 per ton in England, in Spain about \$5 less per ton. Last year the amount imported into England was 95,000 tons.

The process of manufacturing paper from this grass is no more difficult than from rags, and far more pleasant. No infectious or contagious diseases or poisonous insects being carried by it, and the processes are so similar, except in the amount of chemicals required, that a description is almost needless.

I have been through the works of Messrs. William Hurry and Albert Richardson, at Jarrow-on-Tyne, Durham county, England, and these gentlemen kindly pointed out all the steps in the process, and gave me specimens of the grass and paper. They produce 30 tons of paper per week, using from 50 to 60 tons of Esparto grass. No rags are used. The average cost of the Esparto is \$25 per ton. The machinery is propelled by a 100 horse-power steam-engine. Eighty-three women and girls are employed in sorting and boiling the grass; 14 men and boys in washing and beating; 30 in finishing; 17 on machines and cutting; 8 mechanics; 6 engineers and firemen; and 10 ordinary laborers—168 in all. This estimate includes the manufacture of all their own chemicals.

The first step is the assorting of the grass, or separating it from roots, weeds, and flowers. Fifty girls are needed for this part of the work. The grass is laid upon tables of wire, so that all small bits of dirt or leaves may fall through as the work of separation goes on. The loss of weight sustained in this process is three to five per cent.

The grass is then put into large sacks and goes below, where it is put into boilers. Formerly the boilers were open broad circular vessels, but are now cylindrical and closed, so that a pressure of steam of 20 to 25 pounds to the square inch can be given to add to the effect of the chemicals. The boiling is by steam. In these boilers 10 per cent. of caustic soda (N. O. A.) is introduced; that is, 10 pounds of caustic soda to 100 pounds of Esparto grass, more or less soda according to the fineness or coarseness of the grass and the time given in the boiling. The grass is boiled ordinarily five or six hours in the soda, being kept revolving or stirred in the boiler. The water is then run off and pure water supplied, and the grass again boiled for about an hour, to get rid of the resinous soap formed in the first boiling by the gum of the plant uniting with the soda. It is further washed with cold water and then discharged into large oval tubs or vats, and again washed with pure water. Then bleaching powder is added—two to two and a half hundred-weight containing 35 per cent. of chlorine (chloride of lime) to a ton of Esparto. It is revolved in three bleaching tubs till white, the tubs containing 500 pounds to 1,000 pounds each. Four to eight hours is required for this process; four or five hours will be sufficient unless it is thought desirable to use a smaller quantity of bleaching powder. The fiber, when thus bleached white, is pressed to free it from the bleaching liquor, and then placed in the beating engines, where it is washed for half an hour to free it from the remaining bleaching liquor, and then revolved in the beating engine the same as rags are treated, until it is reduced to a sufficiently fine pulp. The size, alum, and color (when color or toning is required) are added, and the pulp is run off into vats or reservoirs ready for use.

In reducing the pulp to paper, my attention was called to but one point of difficulty not encountered in reducing rag pulp. This occurs just after the pulp changes from the liquid state and takes the sheet form. The material at this stage is less tough and tenacious than when made from rags, and the difficulty is in getting it to enter the press-rollers. But a little management and experience overcomes the difficulty, and the paper when finished is even stronger than that made from rags.

The amount of paper produced is 50 to 55 per cent. of the weight of the Esparto grass as it reaches the mill. The loss of weight is as follows: three to five per cent. roots, weeds, flowers, &c.; 25 per cent. extractive matter soluble in the caustic soda, and 20 per cent. destruction of fiber in bleaching and mechanical loss.

All qualities of paper are produced except the very thin writing paper, which may be produced with a little more mechanical skill. I inclose sample of the paper from Messrs. Richardson & Co's. mills. No. 1 is an excellent quality of white printing or book paper; No. 2 toned printing or book paper; No. 3 account book paper; No. 4 a specimen of the best paper that could be made from Esparto grass in 1860, which was manufactured by Routhedge, at Eynsham, Oxfordshire. Messrs. Richardson used a mixture of rags at first, which can be done in any proportion, but for the last three years they have used only Esparto grass. They procure the grass from the east coast of Spain, from Carthagena to Almeria; the best comes from Almeria. They have used a little from Morocco and Algiers, but it required more soda and bleaching powder, and never became so white as that from Spain. The Esparto grows not only in Spain and North Africa, but in various localities along the Mediterranean, in Italy, Sicily, Sardinia, &c., and Portugal.

But the question which most of all interests Americans is its propagation in the United States. Dr. Hooker has written me that he has no doubt but that the Esparto grass would thrive in the United States, and he strongly advises that the introduction be made by seed, not roots, and says it should be started in the nursery and the young plants set out afterwards. Mr. Oliver, who is also one of the best botanists in this country, thinks one of the two species, *Lygum Spartium*, (soft,) being a creeping rhizomatous grass, might be transplanted by being sent over in Wardian cases well rolled in sand, or in cases filled with sandy soil and buried in nearly pure sand. The other species, *Macrochloa tenacissima*, is supposed to be caespitose, and he thinks this mode of packing might not suit it so well. He also recommends trying seed.

If the *Lygum spartium* is a creeping rhizomatous grass it would be likely to spread very rapidly, and once rooted a few plants would soon cover a large tract of country.

I send you some samples of both species of the grass. No. 1, best quality of grass, clean, ready for use; No. 2, specimen taken where the previous crop had not been gathered, so that the dead grass is mixed with it, but the latter decomposes and disappears in the process of manufacture, and only lessens the per cent. of paper per ton; No. 3, specimen contains butts of the grass and roots that should not be gathered with the grass, also some heads; No. 4, the same of the other species; No. 5, wild sage often found growing with the Esparto.

I remain your obedient servant,

J. W. MCCHESNEY,
United States Consul.

Hon. HORACE CAPRON,
Commissioner.

BELGIAN EXPOSITION OF AGRICULTURE AND FORESTRY.

The following letter of the president of the society having in charge the proposed exposition at Namur, Belgium, has been communicated to this Department by the Hon. Hamilton Fish, Secretary of State, together with the letter inclosing it, from Hon. H. S. Sanford, United States minister resident at Brussels:

QUINQUENNIAL EXPOSITION IN 1869.

NAMUR, BELGIUM, December, 1868.

SIR: We have the honor to inform you that the Society of Agriculture and Forestry, of the province of Namur, will hold its third quinquennial exposition in September, 1869, at Namur. This exposition will comprise the following five divisions:

Division 1. Provincial competition of animals for breeding purposes.

Division 2. International exhibition of arboriculture and of all objects, implements, and machines used therein, or in the industries employing ligneous products as a principal material.

Division 3. International exhibition and trial of agricultural machines and implements.

Division 4. Competition in tree and garden culture on the spot, between the instructors of the province of Namur.

Division 5. National competition of iron-work.

Deeming it unnecessary, sir, to call your attention to the utility and importance of international exhibitions of arboriculture and mechanical agriculture, we respectfully ask your aid towards the success of this exposition. We have the honor to transmit to you an extract

from the programme of the exposition, containing a statement of subjects of the second and third divisions; also extracts from the regulations, general and special. We add the remark that the prize juries will be selected from gentlemen of reputation, belonging to the different countries represented.

We shall make it our duty, sir, to furnish to you, without delay, any information which you may desire in regard to this exposition, and shall hold ourselves at your service at any time. We would gratefully receive from you the address of any friends of arboriculture or of any manufacturers who may be disposed to take part in the projected exhibition. Please to direct communications in reference to the subject to M. Stiennon, the secretary of the society at Namur.

Accept, sir, the assurance of our highest consideration.

Count G. D'ASPREMONT-LYNDEN,
President of the Society.

A. STIENNON, *Secretary.*

The following is an abridgment of the extracts mentioned in the above letter:

The exposition will take place at Namur in September, 1869. The precise date of opening and the date of closing will be fixed hereafter. Persons desiring to exhibit are requested to register their names, residence, and profession, stating the numeral descriptions of the classes and divisions in which they desire to take part. Schedules will be forwarded to them, on which they will inscribe their names and the following particulars:

In respect to forest plants and seeds—designation of species, and whether of spontaneous or cultivated, native or exotic growth; age; place of production; nature of the soil in which grown. In respect to ligneous products prepared to indicate age, or presented in the rough state—species; age; defects; diseases. Under this particular classification are included sections of woods, horizontal and vertical, of different ages, also collections representing defects and diseases of woods. In respect to ligneous products prepared for sale—nature of each, and purposes of construction or other use to which it is applicable. In respect to manufactures of wood—nature of the article; manner of manufacture; cost price of the raw material; selling price. In respect to preservation of woods—detailed account of method employed. In respect to agricultural machines and implements—the name and use of each; price; place of manufacture; name of the exhibitor; explanations as to principles of construction, and as to improvements embodied in the machine or implement.

In respect to all articles intended for exhibition in the first and second divisions, statement must be made of the space which they will occupy—first, in the open air; second, under the roof, on the floor, on the shelf, or against the wall.

The above-mentioned schedules are to be signed by the exhibitors and addressed, post-paid, to the secretary of the society, at Namur, by the 1st of August, 1869, at the latest.

The society will bear the expenses of articles included in the competitions of the second division over railroads owned by the State and by Belgian corporations. No articles exhibited are to be withdrawn before the close of the Exposition. On the opening of the Exposition the society will publish a catalogue containing the names of the exhibitors and all information received concerning the articles exhibited.

Plants should, as far as possible, be exhibited in cases of about 60 centimeters in length by 40 centimeters in width.

The managing commission declines all responsibility in regard to the putting up and working of machines and implements. These operations should be superintended by the manufacturers or their agents.

FLAX AND HEMP IN RUSSIA.

Of the agricultural products of Russia, after wheat, flax has the largest consumption, and is also extensively exported. Ten years ago the annual production was estimated at 10,000,000 puds,* which estimate is considered too low in view of the enormous shipments, as the internal consumption reached an amount much greater than the exports. The value of the flax, tow, and linseed exported between 1844 and 1848 was 17,500,000 roubles† annually; from 1849 to 1853 it advanced to 20,500,000 roubles; and 1860 to 1865, to 33,500,000 roubles.

The present production of flax is estimated at 12,000,000 puds, and the annual yield of linseed at 22,000,000 to 25,000,000 puds. Much of this seed is purchased for sowing in England, France, and Belgium. The principal shipping port for flax is Riga, whence 14,000,000 roubles' worth is sent; after which come St. Petersburg, about 4,750,000 roubles; Pernau, more than 1,000,000 roubles; and the custom-house of Verjbolowo, (by the Kowno-Eydtkuhner,) about 1,000,000 roubles. The principal markets for the flax are: Great Britain, 18,000,000 roubles, Prussia, 3,000,000; France, 2,000,000; and Belgium over 1,000,000. The oil seeds exported go from the Baltic ports and the Black sea. St. Petersburg ships annually to the amount of 4,000,000 to 5,000,000 roubles; Riga, 4,000,000; and Odessa, 3,000,000. The principal buyers are: Great Britain, 10,000,000 roubles; France, 2,000,000; and Prussia and Holland about 1,750,000 each. Sunflower, cotton, and a few other oil seeds may be added to the list of 32,000,000 puds of oil seeds produced in Russia. About 15,000,000 puds, valued at 18,000,000, are exported.

Hemp is cultivated in the greater part of central Russia, and the annual production reaches 7,000,000 to 8,000,000 puds, and of hemp seed 5,000,000 to 6,000,000 puds. The exports of hemp by the Baltic ports amount to 4,500,000 roubles, and a quantity goes abroad by the land route. The chief purchasers are Great Britain, 700,000 roubles; Prussia and Sweden, about 700,000 each; France, 500,000; Denmark, 350,000; and the United States, 200,000.

Of 12,000,000 puds of raw flax, from 4,000,000 to 6,000,000, valued at 16,000,000 roubles, are exported; and of 8,000,000 puds of hemp, 3,000,000, valued at 9,000,000 roubles, are exported. Deducting 2,000,000 puds for sowing, there remain for home consumption 15,000,000 puds of seed, 8,000,000 puds of flax, and 4,500,000 puds of hemp. These figures will convey a general idea of the great importance of the industries which belong in Russia to the cultivation of oil seeds and textile plants. These industries are oil-crushing, flax-spinning, sail-cloth, rope-making, and the hempen manufacture.

* Pud, 36.06764 pounds.

† Rouble, about 75 cents.

AGRICULTURAL EXPORTS.

Exports of certain products of agriculture in the year ending December 31, 1868.

Article.	Quantity.	Value.
Agricultural implements.....		\$829, 150
Animals, living, of all kinds.....		827, 177
Ashes, pot and pearl.....pounds..	2, 204, 015	221, 974
Breadstuffs:		
Barley.....bushels..	23, 178	29, 474
Bread and biscuit.....pounds..	8, 669, 881	619, 727
Indian corn.....bushels..	9, 863, 270	11, 167, 818
Indian meal.....barrels..	363, 080	2, 173, 592
Oats.....bushels..	437, 553	284, 448
Rice.....pounds..	2, 339, 177	147, 571
Rye.....bushels..	157, 523	284, 368
Rye flour.....barrels..	8, 985	76, 642
Wheat.....bushels..	12, 904, 958	21, 771, 072
Wheat flour.....barrels..	2, 164, 869	19, 893, 609
Potatoes.....bushels..	366, 469	451, 064
Macaroni, vermicelli, and all other preparations from breadstuffs used as food.....		190, 991
Cotton:		
Sea-island, bales.....pounds..	4, 725, 355	2, 991, 488
Upland, bales.....pounds..	781, 866, 260	162, 967, 035
Cotton, manufactures of.....		5, 394, 237
Rosin.....barrels..	470, 610	1, 844, 584
Turpentine.....barrels..	5, 936	21, 234
Spirits turpentine.....gallons..	2, 623, 374	1, 293, 208
Tar and pitch.....barrels..	22, 258	87, 751
Oil cake.....pounds..	132, 418, 600	3, 634, 363
Provisions and tallow:		
Beef.....pounds..	21, 560, 911	2, 543, 906
Butter.....pounds..	1, 385, 299	476, 989
Cheese.....pounds..	42, 084, 384	6, 137, 132
Fish, fresh.....		56, 765
Fish, dried and smoked.....cwt..	105, 839	487, 671
Fish, pickled.....barrels..	21, 051	170, 667
Fish, other cured.....		216, 685
Ham and bacon.....pounds..	41, 031, 444	5, 625, 345
Lard.....pounds..	50, 122, 144	8, 263, 097
Pork.....pounds..	27, 250, 976	3, 379, 530
Tallow.....pounds..	17, 334, 417	1, 986, 037
Vegetables, fresh or preserved.....		208, 726
Tobacco:		
Leaf.....pounds..	146, 014, 190	17, 565, 966
Cigars.....M.....	627	23, 562
Snuff.....pounds..	30, 607	20, 276
Other manufactures.....		2, 979, 271
Wood and manufactures of:		
Boards, clapboards, deals, planks, joists, and scantling.....M feet..	117, 361	2, 479, 198
Laths, palings, pickets, curtain sticks, broom handles, and bed slats.....M.....	5, 087	13, 251
Shingles.....M.....	30, 770	133, 002
Box shooks.....M.....		754, 395
Other shooks, and staves and headings.....		6, 135, 498
All other lumber.....		1, 202, 406
Firewood.....cords..	8, 087	19, 786
Hop, hoop, telegraph, and other poles.....		640, 002
Logs, masts, spars, and other whole timber.....		277, 417
Timber, sawed and hewn.....M feet..	53, 648	994, 680
All other timber.....		76, 355
Household furniture.....		1, 132, 422

Exports of certain products of agriculture, &c.—Continued.

Article.	Quantity.	Value.
Wood and manufactures of:		
Boxes, coopered ware, and turnery		\$346, 920
All other manufactures of wood not specified		1, 209, 955
Wool, raw and fleece.....pounds ..	512, 186	175, 426
Wool, manufactures of		220, 562

LIVE STOCK AT CHICAGO.

A statement furnished by Geo. T. Williams, assistant secretary, of the receipts and shipments of live stock at the Union Stock Yards, Chicago, for each month of the first quarter of 1869, presents the following totals :

RECEIPTS.

Source of supply.	Cattle.	Hogs.	Sheep.	Horses.
Illinois Central railroad.....	17, 339	58, 139	32, 693	156
Chicago and Rock Island railroad.....	11, 776	39, 320	7, 682	15
Michigan Central railroad	535	2, 276	1, 855	33
Pittsburg, Fort Wayne, and Chicago railroad.....	32	446	178	89
Columbus, Chicago, and Indiana Central railroad.....	277	502	749	8
Chicago and Alton railroad.....	12, 956	26, 878	20, 616	.....
Chicago, Burlington, and Quincy railroad.....	20, 712	101, 033	24, 795	79
Chicago and Northwestern railroad.....	16, 226	39, 618	16, 423	53
Michigan Southern railroad.....	394	2, 184	3, 781	39
Driven into yards.....	84	204	.....	.....
Total.....	80, 331	270, 600	108, 772	472

SHIPMENTS.

Illinois Central railroad.....	1, 897	242	.....	46
Chicago and Rock Island railroad.....	382	290	.....	45
Michigan Central railroad.....	12, 691	2, 532	26, 005	23
Pittsburg, Fort Wayne, and Chicago railroad.....	18, 811	89, 956	11, 168	34
Columbus, Chicago, and Indiana Central railroad.....	1, 872	1, 220	.....	.....
Chicago and Alton railroad	603	3	.....	.....
Chicago, Burlington, and Quincy railroad.....	1, 293	318	211	6
Chicago and Northwestern railroad.....	306	375	264	309
Michigan Southern railroad.....	17, 592	51, 462	14, 511	62
Total.....	55, 447	146, 398	52, 159	525

BRITISH WHEAT IMPORTS.

The imports of wheat into the United Kingdom of Great Britain for January, February, and March of the years named are as follows :

Sources of supply.	1868.	1869.
	Cwts.	Cwts.
Russia	2, 375, 473	2, 565, 526
Denmark	127, 958	115, 739
Prussia	604, 139	915, 376
Schleswig Holstein, and Lauenburg	25, 192	19, 519
Mecklenburg	118, 717	80, 639
Hanse Towns	227, 292	272, 655
France	11, 122	94, 300
Illyria, Croatia, and Dalmatia	407, 168	212, 380
Turkey and Wallachia and Moldavia	945, 978	359, 086
Egypt	1, 241, 382	200, 135
United States	1, 868, 119	1, 971, 265
Chili	74, 371	82, 964
British North America	87, 075	32, 841
Other countries	351, 535	113, 599
Total	8, 465, 521	7, 036, 015

BRITISH WOOL IMPORTS.

The imports of wool into the United Kingdom of Great Britain for January, February, and March of the years named are as follows :

Sources of supply.	1868.	1869.
	Pounds.	Pounds.
Europe	1, 410, 705	5, 073, 607
British Possessions in South Africa	5, 087, 928	6, 504, 193
British India	3, 126, 123	1, 967, 082
Australia	11, 454, 298	34, 546, 516
Other countries	2, 581, 452	3, 484, 236
Total	23, 660, 506	51, 575, 634

ITEMS FROM VARIOUS SOURCES.

William Grange, Turkish consul at Baltimore, in a recent note states that his endeavors to bring the subject of the Ramie plant (*Bochemria tenacissima*) before the public and governments of Europe have resulted in many experimental orders for the same, of from 100 to 200 plants each, from the French and other governments. The Egyptian government proposes to send for 2,000 plants. A parcel of the raw material from Shanghai sold last month at Liverpool for £60 per ton, which is an advance of £5 to £10 on former rates. The lint of this plant grown in the United States is reported to be much superior to the genuine China, for strength, brilliancy, &c.

The amount of logs cut on the St. Croix, in Minnesota and Wisconsin, the past season, is estimated as follows for the different streams:

	<i>Feet.</i>		<i>Feet.</i>
Beaver brook.....	18,700,000	Clam river.....	3,300,000
Apple river.....	27,750,000	Wood river.....	6,000,000
Main St. Croix.....	7,800,000	Namakagon river....	25,500,000
Kettle river.....	21,000,000	Totogatic river.....	20,200,000
Sand creek.....	3,000,000		
Snake river.....	38,400,000	Total.....	189,400,000
Yellow river.....	17,750,000		

California contains 120,947,841 acres of land, of which it is estimated 89,000,000 can be devoted to profitable husbandry.

There were sold at the land office at Visalia, Tulare county, California, during March, over 240,000 acres of government land; a large portion of which lies on the west and southwest of Lake Tulare. Several large tracts along the San Joaquin have also been taken up.

The Santa Clara News says that there are now under cultivation in that neighborhood 700 acres of strawberry plants, which are expected to yield 4,200,000 pounds of berries this season. Many patches last season averaged 7,000 pounds to the acre. The crop this year is estimated to be worth \$500,000 to \$700,000.

It is stated that 200,000 olive cuttings have been set out in Santa Barbara county, California, this season. The demand for cuttings has been greater than the supply of the better class of olive.

An experiment in silk culture in Nevada county, California, realized, from the silk-worm eggs produced last season from their mulberry trees three years old, \$303. Expenses for planting and cultivating the trees and feeding the worms \$25—leaving a profit of \$278.

Several hundreds of Japanese, in families, are settling in California, with the design of cultivating tea and silk, and lands are being purchased for their purposes. They bring with them 50,000 trees of the *Morus alba* three years old. This is said to be the most tender leaf of all the mulberries, and makes the best silk in Japan. They also bring a great number of bamboo plants, useful for many purposes; 500 vegetable wax trees, four feet high and three years old; and 6,000,000 of tea nuts or seeds. There is likely to follow a large Japanese emigration.

The silk-worm industry is being prosecuted with vigor in California. Sufficient worms will be hatched to use all the available food, and the want of mulberry plantations is said to be the only reason that they will not this year be able to furnish sufficient eggs to supply half the demand of Italy.

J. J. Sigrist, of Napa, California, has shipped 20,000 gallons of wine and brandy, the product of his vineyard.

METEOROLOGY.

COMPILED IN THE DEPARTMENT OF AGRICULTURE FROM REPORTS BY OBSERVERS FOR THE SMITHSONIAN INSTITUTION.

Tables showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain and melted snow, (in inches and tenths,) for April and May, 1869, at the stations named. Daily observations at 7 a. m., and at 2 and 9 p. m.

States and stations.	APRIL, 1869.						MAY, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall
MAINE.												
Houlton.....	17, 30	65	5	21	40.4	1.50	25	84	1	26	54.5	4.20
Steuben.....	27	59	5	29	40.7	5.44	26	73	1	33	49.4	3.65
Williamsburg.....	28	54	5	18	37.1	2.78	25	80	1	28	50.1	2.95
West Waterville..	28	62	4	26	42.5	2.73	28	53	4	34	54.2	4.56
Gardiner.....	28	61	4	29	42.6	3.05	26	73	2	37	53.0	4.52
Standish.....	17, 28	63	4	25	41.9	1.97	12	88	2	34	54.7	6.99
Norway.....	27, 28	61	5	25	40.9	3.75	25	84	2	34	53.6	4.65
Rumford Point.....	17	62	5	20	41.3	1.05						
Cornish.....	27	64	4	23	41.8	1.81	25	83	1, 2	34	53.8	4.09
Cornishville.....	27, 28	63	5	20	41.5	1.57	12, 25	84	2	34	55.7	5.11
Averages.....					41.1	2.57					53.2	4.52
NEW HAMPSHIRE.												
Stratford.....	20	67	4	18	37.7	2.48	31	83	1	32	52.0	3.97
Shelburne.....	27, 28	64	12	18	40.3							
Whitefield.....							25	84	22	41	58.0	
North Barnstead..	27	67	3	26	44.8	1.22	12	85	2	33	55.2	3.19
Concord.....							12	88	1	34	56.4	
Goffstown.....	28	74	3, 4, 5	26	42.8	1.50	12	87	1, 2	32	53.0	3.40
Averages.....					41.4	1.73					54.9	3.52
VERMONT.												
Lunenburg.....	20	60	5	20	38.8	2.05	31	78	1, 3, 4	34	55.1	2.85
North Craftsbury..	24	58	4	16	37.0	2.48	11	78	2	31	51.0	2.77
Randolph.....	27	68	11	23	40.4	2.00	25	86	6	36	54.8	3.42
Woodstock.....	24	64	1	21	39.7		12	85	1, 2	33	52.5	
Near St. Albans...	20	63	4	20	39.7		25	79	3	30	53.2	
West Charlotte....	20	72	4	24	41.4	3.60	25	84	1	32	55.9	6.34
Middlebury.....							12	78	2	35	54.4	1.31
Panton.....							25	80	3	36	54.6	5.42
Brandon.....	20	72	1	22	42.2	2.27	25	88	2, 3	34	55.9	3.99
Averages.....					39.9	1.48					54.2	3.73
MASSACHUSETTS.												
Kingston.....	24	75	4	28	47.1	1.38	25, 26	88	2, 6	38	55.3	4.24
Topsfield.....	26	68	3	26	44.9	1.49						

Table showing the range of the thermometer, &c., for April and May—Continued.

States and stations.	APRIL, 1869.						MAY, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
MASS.—Continued.		°		°	°	<i>In.</i>		°		°	°	<i>In.</i>
Lawrence	18	68	3	30	43.3	1.80						
Milton	13, 26	74	3	29	48.6	1.79	12, 26	87	2	39	54.4	3.31
Cambridge	25	78	4	28	47.6	.....	12, 25	89	1	37	57.5	.....
North Billerica	27	71	3	27	45.5	.....	26	87	2	38	56.7	.....
West Newton	24	78	4	24	48.4	.....	12	96	4	38	58.0	.....
New Bedford	26	73	4	30	47.3	1.32	26	82	1, 2	41	55.5	5.69
Worcester	19	71	4	26	45.7	2.52	12, 26	80	4	33	56.0	5.77
Mendon	19	74	3, 4	26	45.1	2.81	26	85	1	30	55.5	4.70
Lunenburg	24, 27	70	4	22	45.5	3.95	12	87	2	34	56.3	9.30
Amherst	20	74	4	27	46.5	1.53	12	83	2	35	55.9	5.05
Richmond	26	78	5	20	45.6	5.75	24	87	3, 4, 5	34	57.9	7.85
Williams College	20	74	3	24	39.4	3.16	12	86	2	33	54.2	3.23
Hinsdale	19, 20, 27	72	3, 4	20	43.2	3.40						
Averages					45.6	2.53					61.2	6.22
RHODE ISLAND.												
Newport	26	68	4	31	46.7	1.94	26	71	2	40	54.6	6.04
CONNECTICUT.												
Columbia	19	76	4	26	47.1	.....					
Middletown	27	78	4	27	47.1	1.65	26	85	1	37	56.4	5.90
Waterbury	24	74	1	29	46.7	1.98	26	81	1	35	56.0	5.45
Colebrook	19, 20	76	4	23	43.8	1.73	12	84	1, 2	33	54.0	5.38
Brookfield	19	81	5	28	47.5	2.80	11, 25, 26	80	6	38	57.1	6.00
Averages					46.4	2.04					55.9	5.68
NEW YORK.												
Moriches	26	81	4	28	51.0	3.42	26	85	2	42	58.6	7.82
South Hartford							12	84	2, 3	36	57.9	2.10
Garrison's	19	78	4	31	50.0	1.95	26	86	1, 2	39	54.1	5.00
Throg's Neck	26	77	3, 4	30	49.0	.....	25	85	1, 2	40	57.5	.....
White Plains	27	74	4	32	48.0	.....	26	83	1	29	56.9	.....
Deaf and Dumb Ins.	27	76	4	32	50.1	1.57	26	82	1	39	57.8	5.45
Columbia College	19	76	4	33	50.3	1.39	26	85	1, 2	41	58.8	3.32
Flatbush	19	79	4	30	48.0	1.56	26	85	2	36	56.2	3.61
Nyack	27	79	9	36	51.9	9.62	25	83	3	43	60.0	4.42
Newburg	26	79	4	30	50.9	0.92	31	90	2	38	59.5	4.33
Minaville	19	80	1, 4	22	43.5	1.45	12	88	2, 3	35	57.0	3.05
Sloansville	19	80	4	18	41.2	3.41						
Gouverneur	20	75	1, 4	18	40.4	1.18	11	77	1	32	49.9	4.10
North Hammonds	20	64	1	18	41.7	0.95	12	80	4	34	56.5	3.85
Houseville	27	74	1	18	39.5	2.69	12	86	1	32	51.8	3.59
Leyden	27	64	1	16	38.2	4.06	12	82	3, 4	30	49.8	3.81
South Trenton	20	68	10	14	38.1	4.91	12	86	21	33	50.3	3.71
Cazenovia	19	76	4	24	42.4	.....	12	83	3, 4	33	52.2	.....
Oneida	19	78	1, 3	27	43.0	4.34	12	87	3	36	56.0	5.69
Depauville	20	72	1	18	40.6	1.10	12	80	4	33	51.7	4.08
Oswego	20	73	1	23	40.5	2.00	13	77	4	35	50.5	2.08
Palermo	20	73	1	20	40.9	1.70	12	86	3	35	53.8	3.10
North Volney							12	83	2, 3, 4	35	53.6	.....
Ludlowville	16	73	4	25	46.8	.....	12	88	4	38	56.5	.....

Table showing the range of the thermometer, &c., for April and May—Continued.

States and stations.	APRIL, 1869.						MAY, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
NEW YORK—Con.		°		°	°	In.		°		°	°	In.
Waterburg	19	76	4	22	43.5	.....	12	86	3	32	53.8	.....
Nichols	19	80	4	27	46.2	.....	11	87	2	37	55.7	.....
Newark Valley ...	19	78	4, 11, 15	24	43.5	2.30	12	89	3	34	54.4	3.50
Himrods							11	82	2	32	53.0	4.50
Rochester	20	74	3	25	43.7	1.47	12	82	2	36	54.9	2.56
Little Genesee	19, 26	74	4	20	42.2	1.55	11, 12	85	5	36	53.5	2.95
Suspension Bridge .	19	75	4	22	41.2	.....	12	89	2	34	52.6	.....
Buffalo	23	70	3, 4	25	41.3	1.77	12	82	2, 3, 4	38	52.9	2.18
Averages					44.4	2.15					54.4	3.56
NEW JERSEY.												
Paterson	24, 27	82	4	29	49.8	1.78	23	90	2	40	58.7	5.10
Newark	19	79	4	29	50.5	1.15	26	84	2	38	57.4	4.67
New Brunswick							26	83	2	39	53.8	4.76
Trenton	27	82	4	32	54.4	1.98	26	89	2	42	62.1	7.00
Rio Grande	27	82	4, 12, 14	34	49.2	.....	26	97	8	40	58.1	6.38
Moorestown	19	79	4	31	51.6	2.12	26	85	2	36	58.1	4.65
Newton	19	78	4	29	47.8	1.79	26, 31	83	2	36	56.4	3.57
White House							26	81	4	44	62.0	.....
New Germantown ..	20	82	5	31	50.3	1.20	26	87	2	38	58.0	4.35
Haddonfield	27	80	4	32	51.5	2.00	31	85	2	42	58.8	3.97
Newfield	27	83	4	30	51.2	.....	31	91	1, 2, 6	43	60.0	.....
Greenwich	27	80	4	32	52.2	1.32	31	85	2	43	59.0	4.39
Vineland	27	90	1, 4	33	53.1	2.57	31	94	2	44	60.7	4.39
Averages					46.4	1.55					58.7	4.54
PENNSYLVANIA.												
Nyces	19, 24, 27	77	1, 4, 12	24	45.8	1.72	25, 26	85	2	32	56.1	5.10
Hamilton	19	73	4	25	43.7	1.88	31	79	2	24	55.6	6.29
Fallsington	19	79	4	29	48.7	1.40	26	86	2	40	59.7	6.70
Philadelphia	19, 27	79	4	34	53.1	1.82						
Germantown	20, 27	84	4	29	52.4	.....	31	93	1	40	61.6	.....
Horsham	27	79	4	31	51.3	2.12	26, 31	83	2	40	58.7	4.90
Plymouth Meeting .	19	82	4	31	51.2	1.17	26	86	2	36	58.7	4.22
Dyberry	19	75	15	20	43.6	1.87	12	83	6	34	52.5	2.22
Whitehall	19	80	4	24	49.4	.....	12	84	6	36	57.8	.....
Factoryville	19	78	4	26	44.6	2.57	26	85	3	34	54.3	4.15
Reading	19, 27	82	4	31	52.9	.....	26	89	2	41	58.8	.....
Parkerville	19	80	4	29	50.8	2.44	31	88	5	40	59.1	3.97
West Chester	19	80	4	29	50.3	2.90	26	87	2	40	58.5	4.53
Phenixville	27	80	12	30	50.7	1.00	26	88	2	39	58.7	4.20
Ephrata	19	84	5, 15	32	54.4	2.82	31	90	4	39	62.3	4.16
Silver Spring							31	90	2	38	60.0	.....
Mount Joy	19	82	12	29	52.8	.....	30, 31	86	5	41	59.7	.....
Harrisburg	27, 28	76	4	32	50.1	1.68	26	87	2	41	60.6	4.04
Carlisle	19	86	4, 15	32	51.5	1.80	12, 31	90	2	41	60.6	5.50
Fountaindale	19	78	3, 4, 11	32	51.6	1.77	31	84	2	40	58.4	4.40
Tioga	18	76	10	16	38.8	1.95	12, 27	84	8	30	50.3	4.50
Williamsport	19	78	4, 5	29	48.3	.....	31	80	5	40	58.8	.....

Table showing the range of the thermometer, &c., for April and May—Continued.

States and stations.	APRIL, 1869.						MAY, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
PENN'A—Con'd.		°		°	°	In.		°		°	°	In.
Lewisburg.....	19	82	4	28	49.2	2.56	26	85	2	40	57.6	4.07
Ickesburg.....	19	85	3	29	49.6	2.79	.....	.....	.....	.....	.....	.....
Grampian Hills.....	19, 28	72	3, 4, 15	20	41.6	3.08	26	82	3	33	51.7	5.18
Johnstown.....	28	76	14, 15	29	45.0	4.17	31	86	3	30	53.0	8.34
Franklin.....	19	74	15	22	45.1	1.57	12	86	5	36	56.7	5.08
Connellsville.....	23	81	4	22	47.9	.....	12	86	2, 3	38	58.1	.....
New Castle.....	19	76	4	22	48.6	.....	31	81	3	34	60.1	.....
Beaver.....	23	79	3, 4	32	48.8	1.00	11, 12, 29	82	2	43	59.3	4.40
Canonsburg.....	26	80	4, 13	24	49.3	0.89	11, 25	84	2, 3	42	59.0	5.67
Averages.....	.....	.....	.....	.....	48.7	2.04	.....	.....	.....	.....	57.8	4.84
MARYLAND.												
Woodlawn.....	28	80	4	30	52.5	1.94	26	92	2	40	59.8	5.08
Annapolis.....	19, 28	80	12	33	55.4	2.80	31	90	2	45	62.6	5.57
St. Inigoes.....	20, 27	76	11	32	55.8	3.85	.....	.....	.....	.....	.....	.....
Frederick.....	28	83	5, 12	35	56.3	1.58	31	86	2	46	65.4	3.69
Emmitsburg.....	27	84	11	29	52.4	.....	.....	.....	.....	.....	.....	.....
Mt. St. Mary's.....	27	78	11	31	51.0	2.53	31	82	2	41	58.4	5.37
Averages.....	.....	.....	.....	.....	53.9	2.54	.....	.....	.....	.....	61.6	4.93
DIST. OF COLUMBIA.												
Washington.....	28	77	11	34	53.8	2.08	.....	.....	.....	.....	.....	.....
VIRGINIA.												
Johnsontown.....	27	80	11	35	54.1	1.10	30	87	7, 8	47	56.8	4.70
Hampton.....	23	86	5	33	56.1	1.50	29	96	7	47	63.8	4.70
Zuni Station.....	19, 23	82	15	32	57.5	1.65	30	94	8	46	63.6	5.35
Bacon's Castle.....	27	91	12	36	58.6	.....	31	96	7	47	65.8	.....
Comorn.....	23	82	12	33	56.6	2.20	31	90	2, 7	46	62.7	3.44
Mt. Solon.....	22	82	12	20	53.6	2.25	.....	.....	.....	.....	.....	.....
Staunton.....	23	79	12	29	51.8	1.71	27, 30, 31	84	7	39	60.5	4.07
Lexington.....	23	87	12	32	56.7	3.42	27, 31	92	7	43	62.6	4.94
Lynchburg.....	23	77	4	32	55.7	.....	30	84	7	46	59.9	.....
Snowville.....	23	81	15	22	50.6	7.50	29	89	10	39	58.0	17.40?
Wytheville.....	23	78	4, 15	28	51.7	1.95	27	84	9	40	57.0	4.40
Do.....	22, 23	80	15	26	55.5	1.29	29	85	3	41	58.9	4.02
Averages.....	.....	.....	.....	.....	54.9	2.46	.....	.....	.....	.....	60.9	5.89
WEST VIRGINIA.												
Romney.....	23	90	12, 15	28	51.4	.....	31	94	2, 3, 7, 8	42	62.5	.....
Cabell C. H.....	20	74	14	28	51.3	1.90	26	79	2	38	58.2	2.00
Averages.....	.....	.....	.....	.....	51.4	1.90	.....	.....	.....	.....	60.4	2.00
NORTH CAROLINA.												
Kenansville.....	23	91	5	32	64.3	5.70	26	94	8	41	68.2	6.15
Goldsboro.....	27, 28	90	12	34	62.4	1.37	31	96	3, 8	48	68.1	4.23
Raleigh.....	23	90	13, 15	32	60.3	2.40	31	97	6, 8	48	64.7	3.80
Oxford.....	27	87	4	32	60.3	1.45	29, 30, 31	94	3	48	66.8	4.00
Trinity College.....	18	85	14, 15	32	57.6	1.98	29	92	7	42	67.2	6.99
Albemarle.....	23	87	15	23	57.7	3.92	27	93	4	32	61.9	3.51

Table showing the range of the thermometer, &c., for April and May—Continued.

States and stations.	APRIL, 1869.						MAY, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
N. CAROLINA—Con.		°		°	°	In.		°		°	°	In.
Statesville.....	23	84	5	24	55.7	3.25	27, 29, 30	90	3, 4, 8	36	55.4	4.13
Asheville.....	22	76	4, 5	30	53.9	3.60	26	83	2	43	60.0	3.85
Do.....	{ 1, 9, 22, 23, 29 }	{ 76 }	4, 15	28	54.2	.....	{ 11, 26, 30, 27, 29, 30, 31 }	78	8	33	58.7	.....
Chapel Hill.....	23, 29	86	12	36	62.8	.....	92	3, 7	49	67.4	.....	.....
Averages.....	.....	.....	.....	.....	58.9	2.96	.....	.....	.....	.....	63.8	4.58
SOUTH CAROLINA.												
Aiken.....	1, 29	84	5	34	62.4	1.69	31	91	3	48	67.8	1.19
Gowdysville.....	9	84	5	34	62.9	5.05	.....	.....	.....	.....	.....	.....
Camden.....	29	88	5	28	59.2	2.21	.....	.....	.....	.....	.....	.....
Averages.....	.....	.....	.....	.....	61.5	2.98	.....	.....	.....	.....	67.8	1.19
GEORGIA.												
Atlanta.....	23	85	14	29	59.0	8.67	29	94	3, 4	44	64.0	1.75
Macon.....	26	86	5, 14	36	62.5	4.90	29, 30, 31	89	8, 9	51	67.5	3.60
Do.....	9	87	5, 14	38	64.3	5.52	.....	.....	.....	.....	.....	.....
Berne.....	24	83	5, 14	38	63.2	4.00	31	95	2	53	70.0	2.21
Penfield.....	1, 25	84	14	36	61.5	2.75	30, 31	90	2	51	67.4	3.12
Averages.....	.....	.....	.....	.....	62.1	5.17	.....	.....	.....	.....	67.2	2.67
ALABAMA.												
Opelika.....	25	88	3, 4, 5	42	65.1	.....	29	92	8	52	69.0	1.81
Carlowville.....	25	85	3	40	65.3	10.50	31	95	3	54	72.6	1.36
Moulton.....	9	79	14	34	60.4	5.55	.....	.....	.....	.....	.....	.....
Green Springs.....	10, 22	82	3, 14	33	61.1	8.92	.....	.....	.....	.....	.....	.....
Havana.....	25	84	3, 5, 14	38	61.5	8.60	29, 31	86	2, 3	50	67.6	1.90
Averages.....	.....	.....	.....	.....	62.7	8.39	.....	.....	.....	.....	69.7	1.69
FLORIDA.												
Port Orange.....	30	91	14	48	68.0	.....	.....	.....	.....	.....	.....	.....
Jacksonville.....	1	91	5	43	67.5	4.25	31	92	8	58	73.4	0.87
Pilatka.....	27	96	14	45	68.9	1.84	.....	.....	.....	.....	.....	.....
Ocala.....	30	92	4	44	68.9	.....	31	96	4, 5	50	72.0	.....
Manatee.....	23	90	14	54	71.6	4.00	30, 31	90	9	62	76.0	1.40
Chattahoochee.....	23	87	14	45	.....	.....	31	93	2	57	72.8	.....
Averages.....	.....	.....	.....	.....	69.0	3.36	.....	.....	.....	.....	72.1	1.11
TEXAS.												
Gilmer.....	22	86	3	38	65.1	5.77	.....	.....	.....	.....	.....	.....
Houston.....	18	88	3	48	68.6	.....	.....	.....	.....	.....	.....	.....
Columbia.....	29	90	3	41	68.5	2.37	29	93	2	53	74.3	3.66
Blue Branch.....	19	87	3	36	65.0	3.31	.....	.....	.....	.....	.....	.....
Lavacca.....	19	86	3	47	66.5	3.16	13	88	1	55	74.5	2.00
Waco.....	19, 22	92	2	45	66.5	5.10	.....	.....	.....	.....	.....	.....
Austin.....	19	90	3	45	65.1	3.09	29	88	18	57	72.7	3.85
Clinton.....	19	88	3	47	67.8	3.53	29	86	1	53	74.2	4.30
Averages.....	.....	.....	.....	.....	66.6	3.76	.....	.....	.....	.....	73.9	3.45
LOUISIANA.												
Shreveport.....	8, 21	82	4	40	65.5	.....	29, 30	88	1, 2, 3, 19	50	70.0	.....

Table showing the range of the thermometer, &c., for April and May—Continued.

States and stations.	APRIL, 1869.						MAY, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
MISSISSIPPI.		°		°	°	In.		°		°	°	In.
Grenada	19, 21	84	4	34	63.5	12.20	29	92	2	46	68.0	3.40
Brookhaven	17, 25	84	3	39	64.4	12.00	31	89	9	51	69.3	1.50
Natchez	19	78	3	40	64.3	9.10	29, 31	83	2	51	71.2	1.37
Marion C. H.	25	88	3	30	62.6	12.40	{ 27, 28, 30, 31 }	92	2	50	73.1	0.80
Averages					63.7	11.43					70.4	1.77
TENNESSEE.												
Elizabethton	23	86	8	28	55.3	3.25	29	90	8	38	61.0	6.80
Tusculum College .	23	80	3, 4	33	55.9	3.50	29, 31	85	3, 9	46	63.7	0.70
Lookout Mountain.	22, 23	75	13	32	56.5							
Clarksville	9	80	3	31	56.5	5.28	29	85	1	47	63.0	2.47
Trenton	22	83	14	31	60.3	9.00	30	86	8	45	65.4	3.30
Memphis	9	82	4	34	59.8	8.79	29, 30	91	1	48	66.9	1.74
Averages					57.4	5.96					64.0	3.00
KENTUCKY.												
Pine Grove	18	78	4	28	51.9	5.17	29	88	3	42	61.8	3.46
Lexington	18	78	4	26	51.7	6.16						
Danville	22	82	13	32	56.8	4.35						
Louisville	23	78	4, 14	26	51.7	5.80						
Clinton	22, 23	78	3, 13	33	55.6	5.10	29	87	3	46	63.1	1.93
Averages					53.5	5.32					62.5	2.70
OHIO.												
Steubenville	28	75	4	26	51.1	0.79	11, 12	82	3	42	61.0	5.44
Martin's Ferry	28	80	12	26	49.1	1.10						
Painesville	19	71	4	24	44.8	3.53	12	80	2	35	55.8	4.50
Gilmore	28	80	3, 4	28	49.4	1.80	11	90	2	36	59.5	6.20
Cleveland	19	76	4	27	45.8	2.65	11, 12	85	2	37	56.7	3.94
Wooster	19	76	4, 12	28	52.5	4.80	26	85	2	40	60.9	5.98
Smithville	26	75	4	28	49.3	1.30	26	88	2	41	59.9	5.09
Kelley's Island	23	68	3, 4	26	45.0	3.22	25, 26	77	2	41	57.1	5.11
Sandusky	19	74	3, 4	27	46.4	3.22	25	82	2	41	57.6	7.99
North Fairfield	19	74	3, 4	26	48.9	1.79	26	82	3	37	57.9	6.01
Carson	19	71	4	28	47.9	1.53	12, 26	80	2	40	57.5	7.83
Westerville	28	75	3, 4	30	49.3	1.96	29	84	2	42	58.8	5.31
New Holland	23	83	14	28	56.1	7.11						
Marion	19, 23	70	4	25	46.8	1.24	26	81	2, 3	40	57.0	8.83
Hillsboro'	18	73	4	25	46.3	3.55	26, 29	80	3	40	59.4	4.31
Toledo	23	78	3, 4	22	45.8	4.99	25	87	3	38	57.4	5.75
Bowling Green	19, 23	81	4	26	47.9	4.72	25	85	2	40	58.8	9.55
Kenton	17	70	4	32	52.1	4.03	31	82	5	41	63.0	16.75
Urbana University.	28	77	4	26	48.4	2.43	26	86	2	42	59.1	7.09
Bethel	28	76	4	20	49.6	3.50	29	87	3	39	59.6	4.00
Jacksonburg	27	74	4	26	49.7	4.00	26	84	3	42	60.1	5.34
Mt. Auburn Inst. ...	18	77	3	27	52.8	3.38	26, 30	82	7	43	62.8	4.42
Cincinnati	18, 28	78	3	27	50.9	2.87						
Do.	23	81	3, 4, 15	32	55.0	0.93	29	90	2, 21	48	66.8	5.93

Table showing the range of the thermometer, &c., for April and May—Continued.

States and stations.	APRIL, 1869.						MAY, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
OHIO—Continued.		°		°	°	<i>In.</i>		°		°	°	<i>In.</i>
College Hill	18	80	3, 4, 14	28	48.3	2.89	26	88	3	40	61.4	7.32
Averages					49.2	2.95					59.4	6.49
MICHIGAN.												
Monroe City	19	74	3	28	46.6	2.59	25	86	3	40	57.5	5.61
Alpena	25	52	4	20	36.1	2.18	11	59	2	36	46.0	1.12
State Agri'l College.	19	78	3	20	45.7	3.77	25	83	18	41	55.5	2.05
Litchfield	23	74	1	12	44.5	4.52	25	82	1	36	55.7	5.00
Coldwater	19	76	3	20	43.6	2.13	10, 25	82	3	30	54.4	5.19
Old Mission	15	65	1, 2, 3	22	37.7	1.02						
Grand Rapids	19	74	3	21	44.9							
Northport	27	64	2	22	37.9	4.48	24	77	3	37	49.5	3.24
Pleasanton	26	68	1, 3	20	38.9	4.70	25	84	16	36	51.3	2.45
Muskegon	19	68	2	26	45.6	2.25	10, 24, 25	80	3, 17	42	58.5	6.50
Oscego	22, 28	72	1, 2	26	46.3		25	82	19	34	55.4	
Copper Falls	26	66	1	14	32.0	2.83	24	73	6	31	46.4	1.10
Penn Mine	26	72	1	13	34.6		31	74	12, 16, 26	34	48.9	
Ontonagon	25, 26	60	1, 2	24	37.8		23	76	{ 1, 2, 6, 7, 14, 15, 16, 17, 18, 26 }	40	50.3	
Averages					40.9	3.05					52.5	3.58
INDIANA.												
Aurora	18, 23	81	4	26	50.2	3.97						
Vevay	18	76	4, 14	30	51.3	3.94	25	84	2	43	61.2	5.95
Muncie	23	80	4	24	49.3	4.10	26	87	1, 2, 19	42	60.4	7.70
Spiceland	23	76	4	27	48.0	3.80	26	85	1, 2	41	58.9	6.03
Columbia City	23	78	2	28	45.4	5.00	25	86	{ 1, 2, 3, 5, 6, 8, 14 }	40	54.0	6.13
Jalapa							26	85	{ 1, 2, 7, 18, 19 }	43	56.8	7.50
Knightstown	23	75	4	26	51.1	3.91	25, 26	84	1	42	59.6	6.98
Indianapolis	23	76	3, 4	28	48.9	4.46	26	83	2	42	59.7	5.49
Cannelton	8	83	2	33	58.8	3.66						
Merom	23	77	4	28	49.4	2.72	26	85	1, 2, 7	43	61.0	4.75
LaFayette	18	74	2, 3, 4	26	48.0	5.10	26	84	3	36	56.9	7.70
Keniland	23	73	2, 3	28	47.7		25	86	18	40	58.1	9.25
New Harmony	18, 22, 23	78	2	34	55.0	3.51	5	87	1	47	64.4	4.80
Harveysburg	18	80	2	28	47.7	6.30	31	90	16	44	63.9	4.40
Averages					46.2	5.06					59.6	6.39
ILLINOIS.												
Chicago	17	72	2	25	37.8	4.30	25	81	2	42	54.6	5.69
Near Chicago	19, 27	70	2	22	43.4		25	84	3	30	51.9	
Evanston	19	70	2	25	45.6	3.62	25	82	6	41	51.8	6.59
Marengo							25	81	7, 8	35	55.3	4.74
Effingham							26	91	1	41	63.6	5.65
Kings Mills	22	68	3	12	43.0	4.33	25	83	7	39	52.9	6.37
Louisville	23	80	3, 4	30	53.7	10.90	26	88	1	44	65.7	5.10

Table showing the range of the thermometer, &c., for April and May—Continued.

States and stations.	APRIL, 1869.						MAY, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
ILLINOIS—Cont'd.		°		°	°	In.		°		°	°	In.
Golconda.....	22	89	6	18	55.5	3.80	30, 31	89	2	42	64.0	2.20
Sandwich.....	18	74	2, 3	21	44.8	4.53	25	85	2	40	57.1	6.28
Ottawa.....	18, 22	75	14	14	48.5	4.08	25	88	6, 7	43	50.6	7.45
Belvidere.....	18, 22	68	2, 4	20	44.5	2.43	25	86	7	42	56.1	4.80
Winnebago.....	22	68	2	20	43.6	2.76	25	85	6, 7	42	54.8	5.53
Rochelle.....	22	71	2	16	35.1	.....	25	84	7	40	56.5	.....
Wyanet.....	28	70	2	21	47.1	3.03	26	87	7	36	58.4	7.78
Tiskilwa.....	22	74	2	22	46.5	.....	25	86	7	40	59.5	.....
Hennepin.....	22	78	2	22	45.0	.....	4	82	7	36	59.0	.....
Ehniira.....	22	77	2	21	46.1	2.07	26	88	7	40	59.7	5.86
Peoria.....	28	72	2	25	49.5	3.33	.....	.....	.....	.....	.....	.....
Springfield.....	18, 28	82	2	26	50.2	.....	28	88	13	34	61.2	.....
Loami.....	18	83	2, 3	26	50.5	6.75	26	90	1	41	62.0	6.90
Dubois.....	23, 27	80	4	25	47.9	4.89	26	86	1	40	65.6	3.06
Waterloo.....	18, 23, 27	80	2, 4, 13	32	56.7	3.65	26	90	1	44	66.3	4.15
South Pass.....	23	83	2, 3	31	56.3	.....	25, 26	86	1	43	63.6	.....
Lombard Univ'ty.....	22	77	2	25	49.0	1.01	26	85	2, 17	47	60.2	3.18
Manchester.....	18	85	2	27	51.3	4.25	25, 26	86	1	43	62.9	4.38
Mount Sterling.....	22	80	2	26	49.8	.....	25	86	1	43	61.6	.....
Andalusia.....	17, 28	68	13	27	46.9	.....	26	85	1	42	59.9	.....
Augusta.....	18	81	3	24	50.6	4.49	25	85	1	45	64.0	5.19
Warsaw.....	18	80	2	26	50.2	4.80	9, 10, 26	83	1	46	64.2	8.66
Averages.....	.....	.....	.....	.....	46.1	3.92	.....	.....	.....	.....	59.4	5.48
WISCONSIN.												
Manitowoc.....	25	67	3	20	40.4	4.07	23	78	7	38	51.2	3.40
Plymouth.....	15, 17	68	3	14	40.1	3.40	25	88	27	40	53.5	5.50
Hingham.....	25	69	3	15	39.9	.....	25	85	3	32	52.7	.....
Milwaukee.....	17	69	3	17	41.8	3.90	25	87	7	36	51.6	4.77
Appleton.....	17, 26, 28	62	1, 3	22	41.5	.....	10	75	17	42	54.0	.....
Geneva.....	28	70	5	20	43.2	3.69	25	85	2, 3, 5	40	54.9	7.09
Waupacca.....	25	70	1	20	42.3	.....	25	85	{ 7, 17, 26, 27 }	{ 40 }	55.1	.....
Embarrass.....	25	66	4	11	39.2	.....	24	80	7	38	52.8	.....
Rocky Run.....	17	66	3	18	42.9	4.38	.....	.....	.....	.....	.....	.....
Madison.....	17	63	2	13	36.7	3.08	25	82	1	35	54.6	4.90
Edgerton.....	25	70	2	16	44.4	3.00	25	90	7	36	58.0	4.50
Baraboo.....	17	70	3	16	43.0	6.38	25	86	12	40	56.4	4.81
New Lisbon.....	25	70	3	20	44.5	.....	24	90	15, 17	40	58.2	.....
Bayfield.....	25	74	2	16	35.7	.....	23	78	6	28	47.4	.....
Averages.....	.....	.....	.....	.....	41.1	3.99	.....	.....	.....	.....	53.9	5.00
MINNESOTA.												
Beaver Bay.....	25	74	3	15	37.5	1.70	.....	.....	.....	.....	.....	.....
Alton.....	25	69	2, 3	12	40.5	1.00	4, 25	88	12	38	56.5	4.25
St. Paul.....	25	68	2	13	41.0	0.56	9	83	12	42	57.7	2.34
Minneapolis.....	25	69	2	12	40.5	1.31	.....	.....	.....	.....	.....	.....
Sibley.....	17, 28	64	2	7	40.0	1.05	4	88	14	39	56.7	1.36
Koniska.....	25	64	2	10	41.6	2.46	20	93	2	32	55.6	2.15
New Ulm.....	17	68	2	17	42.6	0.73	4	89	12	42	59.4	1.35
Madelia.....	22	70	2, 3	12	42.2	1.73	4	90	12	42	60.8	2.25
Averages.....	.....	.....	.....	.....	40.7	1.32	.....	.....	.....	.....	57.8	2.28

Table showing the range of the thermometer, &c., for April and May—Continued.

States and stations.	APRIL, 1869.						MAY, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
IOWA.		°		°	°	In.		°		°	°	In.
Clinton.....	22	73	2	20	45.7	4.16	25	86	18,19,20	44	57.6	3.50
Waukon.....	17	67	2	14	42.2	.....	25	84	12	42	57.7	.....
Dubuque.....	18,22	69	2	19	45.8	2.75	10,25	82	17	42	59.4	4.40
Monticello.....	22	73	1	22	45.4	1.90	25	83	1	45	58.9	5.55
Bowen's Prairie....	22	76	2	18	44.7	3.77	.....	.....	.....	.....	.....	.....
Fort Madison.....	18,22	80	4	23	48.3	3.36	9	88	7,8	41	61.6	4.73
Guttenberg.....	17,22	70	2,3	16	43.2	.....	25	88	2,3,17	40	57.3	.....
Mount Vernon.....	22	76	2	21	45.7	.....	25	85	14	44	58.5	.....
Iowa City.....	18	80	2	20	47.1	3.20	4,25	82	7,18	40	60.0	4.06
Independence.....	18	76	2	17	44.5	2.60	4	88	16	44	59.8	4.20
Near Independence..	18	78	2	16	43.1	3.90	25	88	18	41	56.5	3.70
Waterloo.....	22	73	2	16	40.6	.....	4	86	6	43	60.0	4.15
Vinton.....	18	76	.....	.....	.....	.....	25	85	1,2,12	47	61.0	4.40
Rockford.....	18	74	2	14	45.6	.....	4,25	84	14,17	40	57.8	.....
Iowa Falls.....	18	76	2	20	42.7	3.05	.....	.....	.....	.....	.....	.....
Algona.....	18	72	2	24	42.3	.....	4	86	12	40	57.6	.....
Near Algona.....	18	72	2	17	42.0	.....	.....	.....	.....	.....	.....	.....
Mineral Ridge.....	18	77	1,2,3,12	26	45.1	2.45	.....	.....	.....	.....	.....	.....
Rolfe.....	18	77	2	19	45.4	1.13	.....	.....	.....	.....	.....	.....
Fontenelle.....	17	81	2	24	46.9	2.33	4	91	9,12,15	42	60.8	6.63
Grant City.....	18	82	2	20	45.8	1.58	4	93	12,18	42	61.3	6.12
Logan.....	18	76	2	14	45.1	1.10	4	92	2	33	58.0	3.50
Woodbine.....	18	79	2	20	44.9	.....	4	90	1	40	59.7	.....
Averages.....	.....	.....	.....	.....	44.7	2.66	.....	.....	.....	.....	59.1	4.58
MISSOURI.												
St. Louis Univ'ty..	18,22	80	2	31	55.0	2.87	26	89	1	44	65.0	3.34
Allentown.....	18,22	85	4	26	54.3	6.08	25	91	1,19	44	63.1	3.71
Hematite.....	18	82	4	24	55.7	2.80	5,26	89	3	43	65.4	3.95
Rolla.....	18	85	4	23	53.5	4.31	4,5	86	3	39	61.2	5.66
Jefferson City.....	18,22	80	2,3	30	54.0	.....	26,27	86	1,8	44	65.0	.....
Keytesville.....	.....	.....	.....	.....	.....	.....	25,26	84	1,12,13	45	62.2	4.65
Hermitage.....	8,18	82	3	29	52.9	1.88	26	88	7,17	41	61.5	6.42
Bolivar.....	9,18	82	2	32	57.9	3.65	{ 5,26, 27,29 }	83	1	46	66.0	4.30
Warrensburg.....	18	83	1,3	32	54.2	2.60	4,5	90	13	45	66.1	4.31
Harrisonville.....	8	80	2	26	52.4	4.72	5,25	84	13	42	63.1	3.24
St. Joseph.....	18	84	1,3	33	56.0	4.00	4	86	1,13	46	63.1	5.85
Oregon.....	18	82	3	21	49.6	3.31	4	88	13	42	61.4	4.42
Averages.....	.....	.....	.....	.....	54.1	3.62	.....	.....	.....	.....	63.6	4.53
KANSAS.												
Atchison.....	18	84	3	23	51.7	4.20	4,25	88	13,17	44	62.4	4.60
Leavenworth.....	18	80	2	19	51.5	3.54	.....	.....	.....	.....	.....	.....
Olathe.....	18	84	2	25	51.0	5.00	4	86	13	42	63.6	5.60
Paola.....	.....	.....	.....	.....	.....	.....	26	87	13	44	64.5	3.46
Baxter Spring.....	18	86	2	32	58.2	2.60	25	90	13	46	68.2	6.00
Lawrence.....	18	83	2	22	49.4	2.43	4	84	13	40	59.9	3.64
Holton.....	21	80	3	23	51.2	.....	25	87	8	40	61.2	.....
Le Roy.....	9,18	90	13	20	55.2	2.60	4	93	19	38	64.1	8.11
Neosho Falls.....	8,18	84	2	23	52.0	1.70	4	89	13	41	60.4	3.80

Table showing the range of the thermometer, &c., for April and May—Continued.

States and stations.	APRIL, 1869.						MAY, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
KANSAS—Contin'd.		°		°	°	In.		°		°	°	In.
State Agr. College..	18, 21	77	2	22	47.4	2.20	4	88	13	43	58.0	1.12
Council Grove	18	89	2, 4	26	53.3	4.40	4	91	13	47	64.4	3.85
Averages.....					52.1	3.19					62.7	4.46
NEBRASKA.												
Dakota.....	17, 22	74	3	24	45.5	.....	4	89	12, 13	46	63.8	.....
Omaha Mission	16, 17	70	2	19	49.2	2.90	4	91	3, 4	40	66.0	2.00
Elkhorn.....	14	76	2	19	47.3	.....	4	90	13	43	60.8	.....
De Soto.....	18	76	2	19	46.2	1.64	4	89	13	41	59.9	3.29
Fontanelle.....	18	85	1	22	47.5	.....	4	96	12	43	61.3	.....
Bellevue.....	14	81	2	25	50.3	1.70	4	91	13	45	62.3	4.50
Glendale.....	14	80	2, 3	25	50.2	2.45	4	92	2	40	60.6	6.55
Nebraska City.....	8	77	2, 3	28	53.3	3.05	4, 9, 25	80	13	42	60.8	4.50
Decatur.....	14	79	1	24	47.3	1.09	4	93	13	42	61.7	3.24
Averages.....					48.5	2.14					61.9	4.02
UTAH.												
Coalville.....	13	68	2	23	43.1	.....	19	86	26	39	57.6	.....
CALIFORNIA.												
Monterey.....	27	78	1	40	58.0	0.94	11	80	1	44	58.9	1.09
Watsonville.....	12, 23	83	22	42	61.4	2.30	10	86	2	50	63.0	0.20
Vacaville.....				29	62.1	2.08	31	99	22	52	66.3	0.34
Averages.....					60.5	1.77					62.7	0.54
MONTANA TER'TY.												
Fort Benton.....	30	81	3	28	53.1	2.95						
WASHINGTON TER.												
Port Angelos.....	6, 8	58	8	45	51.0	5.64						

NOTES ON THE WEATHER FOR APRIL, 1869.

[To avoid frequent notices of auroras in these pages it may be stated that the aurora of the 2d, so very bright in the northwestern States and in Missouri, is not named south and east of those States except at one point in Maryland and one in Virginia. That of the 15th, so bright in the eastern and middle States, and in Ohio, Indiana, Missouri, and Nebraska, was not noticed in the northwest, where it was probably hidden by clouds. That of the 16th was bright nearly all over the north, and in Virginia. None of these were noticed south of Virginia and Tennessee, except in Macon, Georgia.]

Houlton, Me.—Magnificent aurora 22d and 23d, covered northern sky, and beams from south lit up that horizon; colors, white, pink, red and purple; auroras 29th, 30th; frost gone 30th.

Steuben, Me.—Auroras 1st, 7th, 10th, 14th, 28th—that of 14th was from south to zenith, spread northward till the sky was one blaze of changing forms and hues, fading to whitish rays in north at 9 p. m. Winter snow fall 97.31 inches in 45 snows.

- West Waterville, Me.*—Sparrows 7th; auroras 15th, 16th; frogs 26th.
- Gardiner, Me.*—Very bright auroras 5th, 9th, 15th, 16th—common auroras 6th, 7th, 10th, 11th. April average heat for 33 years, 41.49°.
- Standish, Me.*—Auroras 4th, 5th, 6th, 9th, 10th, 11th, 15th; bees flying 17th; thunder 19th; plowing 26th.
- Cornish, Me.*—Robins 1st; bluebirds 5th; pewees 7th; larks 10th; swallows 24th; frogs and snakes 27th; martins 28th.
- Cornishville, Me.*—April average for 40 years, 39°.
- Antrim, N. H.*—April generally pleasant; run of maple sap good.
- Stratford, N. H.*—Robins 12th; thunder shower from west, in a. m. 24th; snow yet four feet deep on the mountains.
- Shelburne, N. H.*—Aurora 15th, red in northwest, purple north, cloudy south; sleighing for 160 days; entire snow fall 124.5 inches.
- North Barnstead, N. H.*—Bluebirds 6th; aurora 15th, all night.
- Goffstown Center, N. H.*—Month dry; melting snows raised the Merrimac river higher than since 1812; little damage done.
- Lunenburg, Vt.*—Auroras 6th, 15th; spring very backward—mud deep—waters higher than since 1851.
- North Craftsbury, Vt.*—Auroras 10th, 11th, 16th, (very bright,) 12th, 15th, (remarkably brilliant, covering the sky,) 28th, 29th, (faint;) bluebirds 14th; swallows 21st; frogs 26th; greatest freshet in 40 years, 16th to 24th; winter snow fall 157.64 inches; vegetation 10 days earlier than in 1868.
- West Charlotte, Vt.*—Auroras 7th, (bright at midnight,) 17th, a. m., (red,) 29th and 30th, (both crimson;) liverwort blossomed 25th; water in Lake Champlain higher than ever known, 25th to 30th; grain sowed 30th.
- Kingston, Mass.*—Dandelion 6th; auroras 15th, 16th; thunder shower 25th; winter snow fall three feet—preceding winter 94 inches.
- Milton, Mass.*—Earthquake 2.35 p. m. 22d, lasting 2½ seconds; felt through Norfolk county and parts of Plymouth.
- West Newton, Mass.*—Aurora 15th, changing from crimson to green and purple, flashing from all points to zenith, where it appeared like a cloud agitated by winds.
- New Bedford, Mass.*—Heavy snow squalls 4th; oriole 7th; dandelion in bloom 25th; lilac buds opening 28th.
- Worcester, Mass.*—Blackbirds 1st; auroras 5th, 8th, 11th, 15th; arbutus 9th; dandelion 11th; rain and snow 29th.
- Lunenburg, Mass.*—No snow in April; ground dry; season forward.
- Amherst, Mass.*—Bright aurora 16th, forming corona at magnetic zenith, and flashing various colors all over the sky; snow gone 20th.
- Williamstown, Mass.*—Arbutus 18th; hepatica 20th; much snow yet on the mountains, 30th.
- Newport, R. I.*—Snow squalls 4th, 13th, 14th; aurora 15th.
- Columbia, Ct.*—Thunder showers 7th, 24th; aurora 15th.
- Middletown, Ct.*—Thunder 24th; thunder shower with some hail 25th.
- Waterbury, Ct.*—Auroras 5th, 6th, 10th, 15th; lightning 19th, with thunder 24th; thunder-shower 27th; frost and ice 30th.
- Colebrook, Ct.*—Snow squalls 4th, 8th, 13th, 14th; arbutus 24th.
- Brookfield, Ct.*—Thunder shower 7th; the telegraph wires were affected six hours in advance of the aurora of the 15th.
- Moriches, N. Y.*—Luminous north, as if auroras were appearing, 9th, 10th, 11th; thunder showers 19th, 27th; martin 22d; white frost 30th.
- Garrison's, N. Y.*—Mild, dry month; farm work 12 days early.
- New York, N. Y.*—Thunder and hail 7th; lightning and thunder 27th.
- Minaville, N. Y.*—Grain sowing 19th; light thunder showers 19th, 20th; frost and ice 30th.

North Hammond, N. Y.—April came in cold; sugar season begun 7th; thunder showers 19th, 23d; St. Lawrence navigation open 25th.

Houseville, N. Y.—Robins 1st; auroras 7th, 10th, 11th, 13th, 16th; thunder-storm 19th; great freshet in Black river 19th to 23d.

Leyden, N. Y.—Auroras, (faint,) 6th, 11th, 17th, (bright,) 7th, 10th, 16th, the latter very bright, covering the northern heavens. On the 22d, Black river five feet higher than ever known; destroyed mills, factories, dams, &c., worth over \$1,000,000.

South Trenton, N. Y.—All the birds have come except swallows.

Cazenovia, N. Y.—Auroras 7th, 14th; thunder-storm 19th; frosts 23d, 30th.

Depauville, N. Y.—Auroras 6th, 7th, 8th, 10th, 11th, 12th, 13th; last sleighing 13th, (126 days in all;) grain sowing 26th.

Ludlowville, N. Y.—Auroras 7th, 11th, 15th; spots on sun visible through smoked glass about the middle of the month.

Waterbury, N. Y.—Auroras (low in N.) 7th, 10th, (very bright,) 11th, 15th, (common,) 16th; thunder-showers S. 19th, 27th.

Tioga, N. Y.—Snow squalls 3d, 4th, 13th; auroras 15th, 16th.

Newark Valley, N. Y.—Much maple sugar made by 19th; late spring.

Buffalo, N. Y.—Frost, ice, a. m., rain, hail, p. m., 1st; snow 2d, 3d, 4th, 6th, 7th, 12th, 13th; thunder-shower 19th; ice yet in harbor 30th.

Paterson, N. J.—Aurora, 7th class, 15th; the corona here was 22° south of zenith; in New York, said to be in zenith, making it about 45 miles above the earth.

Newark, N. J.—Frequent frosts until aurora of 15th, when temperature increased rapidly for several days; month dry, dusty, and blustery; season 10 days earlier than last year; the aurora of 15th worthy to be classed with those of August 28th and September 1st, 1859, (but not equal to first-named,) and September 3d and 29th, 1851; February 18th and 19th, 1852; and August 4th, 1862; all brilliantly beautiful and grand.

Necton, N. J.—Auroras 5th, 7th, 8th, 9th, 15th 16th; oats sown 8th.

Philadelphia, Pa.—Aurora, 9 to 11.30 p. m., 15th; rays radiated from zenith, south 45°, with flashes or waves of light, and north to within 25° of horizon, frequently appearing like an immense curtain waving in the wind.

Dyberry, Pa.—Snow and rain squalls 6th, 7th, 8th; yellow violets 18th; swallows 23d.

Whitehall, Pa.—Squalls, snow, and rain 2d, 3d, 4th; first swallows 24th; peaches blossom 28th; plums and cherries 30th.

Factoryville, Pa.—Thunder-storm in north, 27th; the first half of month cold; last half very mild.

Parkesburg, Pa.—Corn planted 17th to 20th; showers and large hail 29th; early April was windy and dry.

Phoenixville, Pa.—Toad 2d; peach, pear, and cherry in full bloom 25th; April dry and warm.

Carlisle, Pa.—Oat sowing 2d to 10th; corn planted 26th.

Fountain Dale, Pa.—Peaches blossomed 16th to 22d; apples 24th to 30th; cherries, pears 24th to 27th; first thunder-storm 28th; month dry and warm; vegetation 10 days earlier than usual.

Tioga, Pa.—Unusually cold till 17th; thunder and hail 27th; grain mostly sowed 30th; last half of April favorable for farmers.

Ickesburg, Pa.—Frequent freezing till 15th; auroras 15th, 16th; first frost and ice since 15th on 30th.

Grampian Hills, Pa.—Cold and wet 1st to 8th; plowing 9th; snow 13th; oat sowing 25th.

Johnstown, Pa.—Cherries blossomed 26th; peaches 29th.

Franklin, Pa.—Frogs 15th; thunder-showers 18th; heavy frost 30th.

Connellsville, Pa.—Snow 7th, 12th; whippoorwill 19th; thunder 28th.

Beaver, Pa.—Frosts 13th, 14th, 26th; thunder-showers 20th, 28th.

Woodlawn, Md.—Ice 8th, and frost 9th, mornings; auroras 5th, 15th, 16th; peach and cherry bloom 19th; apple 27th; whippoorwill and swallow returned 10 days earlier than last year.

Mount St. Mary's, Md.—Auroras 2d, 15th; frosts 14th, 15th, 30th.

Johnstown, Va.—Cherry and plum in bloom 6th; aurora 16th; whippoorwill 24th; April very dry.

Zuni Station, Va.—Bright auroras 1st, 15th; only one entirely clear day in April, and yet but little rain.

Bacon's Castle, Va.—Rain, hail, snow 11th; 9th to 15th cold; martins and humming birds 20th; the freeze of 14th killed much fruit; very dry at close of month.

Comorn, Va.—Snow, 3 inches, 11th; ice 15th; apples in bloom 24th.

Mount Solon, Va.—Auroras 15th; "the absence of any red rays through the whole display" was noted as remarkable.

Lexington, Va.—Auroras 2d, 15th; 6 frosts—that on 12th destroyed many peaches and cherries; corn-planting 26th.

Lynchburg, Va.—Snow, 3 inches, 11th; severe frost 15th—fruit suffered.

Wytheville, Va.—More snow 13th (3 inches) than on any day all winter; freeze 15th, killed most cherries.

Huttonsville, W. Va.—Snow 3d, 4th; rain and hail 10th.

Cabell Court House, W. Va.—Snow 13th; ice 14th; strawberries blossomed 18th.

Oxford, N. C.—Frost 15th, killing much fruit and vegetables.

Trinity College, N. C.—Six frosts; that of 14th killed all peaches and many apples; forest leaves grown 30th.

Albemarle, N. C.—Frost 15th, killed peaches—a few apples left; grapes sending out reserve buds; wheat and rye heading out, 30th.

Asherville, N. C.—Frost destroyed all peaches, and most cherries.

Anderson, S. C.—Whippoorwill, 2d; mocking birds singing 14th, (here all winter, but silent;) cold snap 12th to 16th; month very favorable to cotton. In 1849 snow on the 15th, and frost till 18th, killed even the wheat, then "in the boot."

Gowdysville, S. C.—Frost, ice, snow, 4th to 16th; strawberries blossom 16th, ripe 30th; wheat heading; clover 10 inches high.

Atlanta, Ga.—First strawberries 10 days later than last year.

Macon, Ga.—Frost 5th, injured some vegetables; aurora 15th, suddenly ceased at 10 p. m.

Opelika, Ala.—Whippoorwill 9th; frost 14th, injured beans, &c.

Moulton, Ala.—Early part cool and frosty; nearly all peaches, cherries, &c., killed on 5th; the latter part very wet, with highest tides in 20 years; but one fair day in the month.

Pilatka, Fla.—Month delightful.

Ocala, Fla.—Hail reported 10 miles south, a rare event here.

Lavacca, Texas.—Month cloudy, rains light and misty.

Austin, Texas.—Frost 3d; chuck-wills-widow heard 22d.

Waco, Texas.—Wheat and corn doing well.

Benton, La.—Terrible hail-storm 22d, covered the ground seven to ten inches in circumference; fruits, cotton, and corn damaged.

Grenada, Miss.—Severe frosts 3d, 4th; profuse showers 18 to 20th, streams overflow, damage crops, and retard farm work.

Brookhaven, Miss.—White frost 3d; firefly 6th; quails, "bob white," 20th; thunder-storms copious, 16th, 17th, 22d, 23d; farm work delayed.

Elizabethton, Tenn.—Barn swallow 4th; remarkable thunder snow-storm, in gusts of balls and flakes, from southwest, 13th; last frost 16th.

Tusculum College, Tenn.—Frost 12th; snow on mountain eight inches deep 13th; lightning and thunder 17th, 19th, 24th.

Clarksville, Tenn.—Whitish light east of north, supposed to be an aurora, 15th; ice a. m., snow p. m., 13th; peaches killed in blossom; heavy rain, hail, lightning, 19th.

Trenton, Tenn.—Last frost 14th; heavy thunder-storms and gale 19th; wet, late spring; little corn or cotton planted yet.

Pine Grove, Ky.—Thunder-storms 1st, 19th, 20th, 28th; frequent snow, ice, frost, 2d to 14th; peaches delayed in blossoming 9th to 30th.

Lexington, Ky.—Last snow, two inches, 13th; aurora 15th, very brilliant 7.30 p. m. till midnight; spring tardy.

Clinton, Ky.—Whippoorwill 2d; aurora 15th.

Steubenville, Ohio.—Light snows 3d, 4th; aurora 15th; peach blossoming 23d; apple 25th; cherry 29th; spring backward.

Cleveland, Ohio.—Frosts 12th, (heavy,) 13th, 30th; cherry, peach, blooming 29th.

Kelley's Island, Ohio.—Snow 2d, 3d; crocus 13th; hyacinth 23d.

Sandusky, Ohio.—Five thunder-showers 18th to 28th; frost 22d.

Westerville, Ohio.—Snows 3d, 6th, 10th, 13th; aurora 15th; thunder-showers 23d, 28th; frost 30th.

New Holland, Ohio.—Ground frozen one inch 12th; aurora 16th; thunder hail-storm, (17 weighed a pound,) destroyed much fruit, 28th.

Marion, Ohio.—Beautiful aurora 5th; snow 6th; light frost 29th.

Hillsboro', Ohio.—Thunder-shower 1st, with hail 28th; snows 10th, 12th, 13th; peaches blossom 22d; pears 27th.

Toledo, Ohio.—Snows 2d, 11th, 13th, 14th; with rain or sleet 1st, 7th; frequent thunder-showers 18th, 28th; peaches blossom 30th.

Bowling Green, Ohio.—Auroras 5th, 10th, 15th.

Kenton, Ohio.—Aurora 14th, beautiful, all over the heavens.

Urbana, Ohio.—Auroras 5th, (bright white light, equal to full moon;) 15th, (covering 220° horizon and reaching to 20° south of zenith, forming no corona and no arch, but masses of light at zenith; flashes and waves of pink, crimson, and white, lasted till 11 p. m.

Bethel, Ohio.—Peaches in bloom 20th; thunder-shower 28th; peaches one-fourth killed by frost.

Jacksonburg, Ohio.—Thunder snow-storm 13th; ice 14th; aurora 15th; peaches blossoming 24th to 28th.

Litchfield, Mich.—Auroras 5th, 15th; brown thrush, martin, 17th.

Grand Rapids, Mich.—Aurora 2d; thunder-showers 18th, 19th, 28th.

Northport, Mich.—Auroras 2d, 4th, 5th, 7th, 9th, 10th, 13th; frogs musical 19th; heavy rain, then four-fifths inch snow 20th, 21st; frost 30th.

Muskegon, Mich.—Heaviest thunder-storm for years 18th; full day's rain 20th.

Otsego, Mich.—Severe snow-storm all day 1st.

Penn Mine, Mich.—Bright auroras 2d, 9th; snows 9th, 16th, 18th, (about a foot,) 19th, 20th.

Copper Falls, Mich.—Auroras 3d, (bright and beautiful colored streamers covering two-thirds of the sky;) 4th, 5th, 9th, 14th, (the last two well-defined streamers and arches;) April snow fall 25.25 inches.

Vevay, Ind.—Aurora 15th, (colored rays and luminous haze north-northeast and northwest;) 16th, (faint, two indistinct arches.)

Muncie, Ind.—Pale auroras 4th, 16th; bright 5th, 15th, (the last, a

corona about 10° south of zenith, luminous rays and waves reaching midway between eastern and southern horizon;) three hail-storms p. m. of 28th, injuring fruit in bloom.

Spiceland, Ind.—Rain, then greatest snow (5.5 inches) of the winter 10th; aurora 15th; peaches blooming 26th to 28th.

Columbia City, Ind.—Robins 2d; martins 5th; aurora 15th, filled northern hemisphere, corona a little south of zenith.

Indianapolis, Ind.—Snow 10th, 13th; tornado, lightning, thunder, 19th, destroyed a railroad depot; hail large as bird's eggs 28th; peach in full bloom 30th.

Merom, Ind.—Snow 12th, 13th; ice 14th; aurora 15th; peach blooming 19th; thunder-storm and tornado 19th.

Chicago, Ill.—Beautiful aurora, bluish streamers, 2d; two thunder-storms 18th, (near Chicago;) unusually cold 14th; first thunder-shower 18th.

King's Mills, Ill.—Snow 1st; ice, beautiful aurora, 2d; cold, wet month; sowing 15 days later than usual.

Louisville, Ill.—Snow 12th, 13th; peach blossoms 15th; whippoorwill 17th; great wind and rain storm 19th and 20th.

Ottawa, Ill.—Thunder, rain, sleet, snow, 1st; fine aurora 2d; ice 11th; severe snow-storm 12th; very severe thunder, wind, rain, hail, 19th, 20th; thunder-storm 28th.

Belvidere, Ill.—Snows 1st, 11th, (six inches;) aurora 2d, (bright arches, streamers, waves, and corona;) 16th, (very bright.)

Winnbago, Ill.—Rain, sleet, snow, thunder, high wind, 1st; auroras 2d; (brilliant all night) 5th; (faint,) 16th.

Rochelle, Ill.—Bright aurora 2d; arch from north of west, a few degrees south of zenith, to south of east; polar light at the same time.

Wyand, Ill.—Thunder-shower, then snow, 1st; snow squalls 12th; aurora 16th; martins 18th.

Peoria, Ill.—No aurora observed 15th; hurricane 19th.

Laomi, Ill.—Rain, then destructive gale, 18th, 19th.

Dubois, Ill.—Aurora 3d; two earthquake shocks from west about 10 p. m., 8th; whippoorwill 9th; peach blooms 22d; apple 24th.

Waterloo, Ill.—Frequent frosts 1st to 15th; violent storm 19th; early peaches damaged by frost.

South Pass, Ill.—Faint aurora 2d; last frosts 13th, 14th.

Manchester, Ill.—Auroras 2d, 16th; snow 12th, 13th; whippoorwill 21st.

Mount Sterling, Ill.—Bright aurora 2d; snow all day 10th; too wet to sow or plant; not a peach blossom in this region.

Augusta, Ill.—Violets, martins, 21st; plums bloom 25th to 29th; strawberry 26th; pear 28th; season three weeks behind time.

Warsaw, Ill.—Brilliant aurora 16th; hail three-fourths inch diameter 18th; whippoorwill 18th; swallows 20th.

Macomb, Ill.—Cold, showery, 1st to 15th; auroras 12th, 13th, 14th; thunder, then hail, then wind-storm, 18th.

Manitowoc, Wis.—Auroras 4th, 5th, 9th, 13th; thunder, hail, 18th.

Plymouth, Wis.—Auroras 2d, 5th, 9th, all pale, without beams; terrific thunder-showers 18th; but little sowing done.

Hingham, Wis.—Snows 1st, (10 inches;) 12th, (2 inches.)

Milwaukee, Wis.—Heavy snow all day 1st; auroras 2d, 5th (brilliant;) 10th, 13th, 16th, (during the night;) (15th, if here, not visible for clouds;) snow 12th; frost 25th.

Embarrass, Wis.—Bright auroras 2d, 5th, 8th; faint, 6th, 16th.

Rocky Run, Wis.—Snow all day 1st; auroras 2d, 4th, 5th, 7th, 8th, 9th, 10th, 11th, 16th, 19th, 29th; snow on four and rain on nine days.

Bayfield, Wis.—Brilliant aurora 2d; bay open, hail, snow, 19th.

Beaver Bay, Minn.—Bay clear; Lake Superior open 3d.

Afton, Minn.—Brilliant aurora 2d; faint one all month.

Minneapolis, Minn.—River open 10th; first boat through Lake Pepin 19th; wheat sown second week in April.

Sibley, Minn.—Frogs peep 10th; thunder-showers 16th, 17th.

New Ulm, Minn.—River open 2d; auroras 2d, 5th, (one electric cloud, west, reached zenith;) 9th, (clouded;) 15th, (cloudy, but reached 5° south of zenith;) 16th, (partly cloudy;) hail-storm 16th.

Madelia, Minn.—Severe northeast snow-storm 1st; auroras 2d, 5th; hail 22d; frosts 21st, 24th; cold, cloudy month.

Clinton, Iowa.—Rain and snow-storm 1st; aurora 2d; season late.

Dubuque, Iowa.—Severe tornado from southwest, doing much damage, 18th.

Waukon, Iowa.—Brilliant auroras 2d, 5th, 16th; whippoorwill 25th.

Bowen's Prairie, Iowa.—Auroras 16th, 17th; month rather unpleasant.

Mt. Vernon, Iowa.—Bright aurora 2d; arch east, through zenith, to west, and faded away from the center.

Iowa City, Iowa.—Unusual aurora 2d; violent hail, then wind, 18th; thermometer suddenly rose to 80°; month cold, cloudy.

Independence, Iowa.—Auroras 2d, 5th, 16th, (double arch;) blackbird concert 17th; first thunder-showers 18th; wheat sowing a fortnight later than last year.

Waterloo, Iowa.—Snow, rain, wind, 1st; brilliant aurora 2d; hail 18th; cool, but splendid for seeding.

Iowa Falls, Iowa.—Aurora 2d; wheat sowing 7th; ground frozen every morning till 11th; whippoorwill 22d.

Algona, Iowa.—Auroras 2d, 5th; prairie flowers 15th.

St. Louis, Mo.—Most terrific hail-storm ever known here 19th; about 4 p. m. could not read by light of day; some hail-stones were one and a half inch in diameter.

Hematite, Mo.—Aurora 2d; "singular lightness shining through the clouds" 15th; terrible storm 19th; a dry April.

Jefferson City, Mo.—Auroras 2d, (splendid;) 13th, (clouds;) snow at night 2d; thunder-storms 18th, (with hail;) 19th, (all day, with wind;) 22d, (violent hail and hurricane for 15 minutes.)

Warrensburg, Mo.—Ice 13th; snow 30th; peaches killed.

Le Roy, Kansas.—Frosts 12th, 13th; month fine for farmers.

Manhattan, Kansas.—Lightning north, at 7 to 8 p. m. 15th; aurora 16th.

Council Grove, Kansas.—Thunder, hail, 15th; northeast storm 29th, 30th.

Dakota, Neb.—Frogs 14th; bright auroras, 15th, 16th.

Elkhorn, Neb.—Snow 1st; ground frozen 4th, 12th, 13th; rain all day 15th; aurora 16th.

Neosho Valley, Neb.—Cloudy and misty 15th; windy, cold month.

Nebraska City, Neb.—Young grasshoppers by millions 7th; martins 13th; whippoorwill 27th; peach blossoms 28th.

Coolville, Utah.—Snow-storms 3d, 14th, 17th, 18th, 19th, 21st; blue-birds 3d; plowing 6th; beautiful aurora 15th; frost 29th.

Watsonville, Cal.—Smart earthquake 1st, no damage.

Fort Benton, Mon. Ter.—Aurora 1st; upright beams from Polaris to northeast, electric lights from east to west in vast white waves, motion 70° per second, tending north, and forming a nearly complete arch overhead.

NOTES ON THE WEATHER FOR MAY, 1869.

Steuben, Me.—Hard freeze 1st; snow squalls 2d; auroras 8th, 13th; thunder and lightning 13th; frosts 19th, 23d, 28th, 30th.

Lisbon, Me.—Month cool, but more favorable than last year; sowing and planting finished by 31st.

West Waterville, Me.—Sleet 2d, 4th; aurora 8th; thunder-storms 13th, 26th; bobolink 18th; cherry and plum blossoms 30th; apple 31st.

Gardiner, Me.—Snow two inches 1st; auroras 6th, 7th, 8th, 9th, 10th, last three bright; May mean heat for 33 years 53.9° ; this May 52.89° ; season more forward than last year.

Standish, Me.—Snow 1st, 2d; aurora 8th; cut caterpillar 11th.

Norway, Me.—Frosts 1st, 7th; snow, sleet, rain, 2d; faint auroras 5th, 6th, 10th; thunder-shower 12th; rain on 17 days.

Cornish, Me.—Bobolink 7th; king bird, orchard oriole, 10th.

Cornishville, Me.—May mean heat for 40 years 51.22° ; this, 55.72° .

Stratford, N. H.—Snow 2d, ($1\frac{1}{2}$ inch;) 3d, (3 inches;) frost, ice, 27th.

Whitefield, N. H.—Last three weeks cloudy and rainy; late spring work.

Goffstown Center, N. H.—Aurora 8th; first thunder-storm 18th; fine month for farmers.

Lunenburg, Vt.—Frost 27th; a pleasant month; vegetation fine.

North Craftsbury, Vt.—Brilliant auroras 7th, 8th; bobolink, 13th; thunder-storm 16th; frosts 21st, 26th.

Randolph, Vt.—Snow 1st; (4 inches) 2d; sleigh ride 3d; apple blossoms 27th, nearly a week earlier than last year; month dry and fair for farm work.

West Charlotte, Vt.—Northeast rain; snow 2d, first May snow in 35 years; snow squalls 4th; deep crimson auroras 6th, 27th; bobolink 11th; peach blossoms 28th.

Middlebury, Vt.—Aurora 8th; thunder and hail storm 16th.

Brandon, Vt.—Rain, sleet, snow, 1st, 2d; showery 16th to 21st; frost, ice on low lands, 27th.

Kingston, Mass.—Peach blossoms 2d; cherry 7th; vegetation about a week earlier than last year.

New Bedford, Mass.—Peach blossoms 2d; cherry 4th; apple 23d.

Worcester, Mass.—Rain, snow, 1st; thunder-storm 2d; auroras 7th, 8th, 10th.

Lunenburg, Mass.—Thunder, rain, hail, and $4\frac{1}{2}$ inches snow, 1st, 2d; (10 miles north, snow 18 inches, and sleighing on 3d and 4th;) cherry blossoms 10th; peach 13th; apple 25th, (average of apple blossoming for 72 years May 21st; earliest, May 9th, 1830; latest, June 3d, 1850.) May mean temperature for 31 years 55.63° ; this year, 53.92° .

Amherst, Mass.—Thunder and lightning, with rain and hail, 2d; hills covered with snow 3d.

Williamstown, Mass.—Sleet and snow 2d; faint auroras 6th, 7th; heat lightning 12th.

Newport, R. I.—Ice 2d; frost 7th; thunder-showers 15th, 26th, 29th, 31st.

Middletown, Ct.—Thunder, lightning, hail, 2d; auroras 7th, 8th, 12th.

Waterbury, Ct.—Frost, ice, 6th; aurora 8th; pear blossoms 11th; Baltimore oriole 12th; apple blossoms 17th; lilac 19th.

Colebrook, Ct.—Rain, snow, 1st; with high wind 2d; in squalls 3d.

Moriches, N. Y.—Faint aurora 3d; white frost in places 5th.

Garrison's, N. Y.—Month cool, much rain; grain and grass good.

New York, N. Y.—Snow 2d; hail 16th; seven thunder-showers.

Minaville, N. Y.—Snow 2d, 3d; cherry blossoms 15th; apple 25th.

North Hammond, N. Y.—Snow and rain all day 3d; frost, injuring cherries and plums, 27th; orioles and bobolinks 11th; heavy dew 22d.

Houseville, N. Y.—Auroras 8th, 9th, 10th; thunder-storms 12th, 16th, 26th.

Leyden, N. Y.—First east wind for a year, and two inches snow, 1st; auroras 7th, 8th, 10th.

South Trenton, N. Y.—Cherry and plum blossoms 13th; apple 23d.

Depauville, N. Y.—Rain, snow, 2d, 3d; auroras 7th, 8th, 9th, 10th, 12th; frosts 10th, 22d, 27th; plum blossoms 16th; corn planting 19th; apple blossoms 30th; cool, dry May.

North Volney, N. Y.—Snow 1st, 3d, 4th; auroras 7th, 8th, 9th, 10th; thunder and hail 16th, some $\frac{3}{4}$ inch in diameter; rain on 13 days.

Vermillion, N. Y.—Daffodil blossoms 6th; dandelion 13th; shad bush 14th; apple 30th.

Waterburg, N. Y.—Ice 4th; auroras 7th, 8th, 9th, 10th; frost 22d, 23d.

Nichols, N. Y.—Snow squalls 3d; aurora 8th; pear blossoms 18th.

Newark Valley, N. Y.—Thunder and hail 16th, 26th—on 16th so dark, lights had to be used in day-time, and on 26th thermometer fell from 80° to 64° in less than half an hour; spring late.

Himrods, N. Y.—Ice 4th; hail 14th; frost 22d.

Buffalo, N. Y.—Ice 3d; frost 22d; ice in harbor till 16th; orioles 10th; cherry and peach blossoms 15th; plum 20th; apple, lilac, 29th; month 1.5° colder than May average for 11 years.

Newark, N. J.—Driving northeast rain-storm 1st, 2d; May average for 25 years 58.64°; warmest in 1844, 62.22°; coolest in 1861, 54.72°; May, 1869, 57.37°.

New Brunswick, N. J.—Auroras 4th, (feeble;) 5th, (beautiful;) first dew, 6th; thunder-showers, one very heavy, 31st.

Moorestown, N. J.—Northeast storm 1st, 2d; some snow on 2d.

Newfield, N. J.—Frost 5th; apple blossoms 7th; corn planting 10th.

Greenwich, N. J.—Hail 16th; wheat heading 20th; fire-flies 24th.

Vineland, N. J.—First four days cool and stormy. Month favorable for all crops; strawberries a week earlier than last year.

Nyes, Pa.—Snow (3 inches) 2d; in squalls 3d; thunder-storm 30th; clouds almost black, and air very dark.

Hamlington, Pa.—Six thunder-storms in May, on 15th with hail.

Fallsington, Pa.—Heavy rain and hail 1st; frost 5th, 23d.

Horsham, Pa.—Auroras 4th, 9th; hail 16th, damage fruit and crops.

Plymouth Meeting, Pa.—Snow 2d; frost 5th, 6th; apple blossoms full 7th, 10 days earlier than last year.

Dyberry, Pa.—Cherry blossoms 4th; apple 20th.

White Hall, Pa.—Rain, hail, snow, 1st, 2d; light frost 6th; in full bloom: cherries 5th, pears 9th, apples 14th, quinces 24th; whippoorwill 15th; hail 16th.

Factoryville, Pa.—Rain, hail, snow, 1st, 2d, 3d; auroras 4th, 5th, 6th, 8th, 28th; corn planting 11th.

Westchester, Pa.—Frost 5th; hail-storm 16th; rye in head 16th, and wheat 24th; aurora 29th.

Carlisle, Pa.—Thunder-shower, hail, 13th; wheat heading 29th.

Fountain Dale, Pa.—Lilac blossoms 1st to 7th; dogwood 7th to 9th; locusts 30th; tornado 31st, from southwest, doing considerable damage in 15 minutes.

Tioga, Pa.—Snow on hills 2d; fruit blossoms 20th; frost, ice, 22d. Much dark, cloudy weather; coldest May in 12 years.

Franklin, Pa.—Peach blossoms 12th; some hail 16th; frost 20th.

Connellsville, Pa.—Apple blossoms 7th; frost 23d; thunder, rain, hail, 28th.

Newcastle, Pa.—Rain almost every day after 14th. May 1° higher temperature than in 1868.

Beaver, Pa.—No frost; frequent rains.

Canonsburg, Pa.—Frost, ice, 3d; rye shooting 22d, and barley 25th.

Woodlawn, Md.—White frosts 2d, 5th; martins 10th; rye shooting 11th, and red medium wheat 18th; locust blossoms 27th; fire-flies 29th.

Mt. St. Mary's, Md.—Snow flakes 3d; thunder, rain, hail, 13th, 31st.

Clarksville, Md.—May 29th, 5½ p. m., tornado from west; in three minutes destroyed fields of wheat, prostrated orchard, shade, and forest trees, buildings, fences, and injured several persons.

Johnsontown, Va.—Frost kills tender vegetables 9th; (last in 1863, April 23d;) display of shooting stars at 11 p. m. 10th, from northeast to southwest; locust blossoms 13th, and rye 15th.

Luni Station, Va.—Fire-fly 11th; faint aurora 13th; rust on wheat leaf 26th. Favorable weather.

Bacon's Castle, Va.—Snow, hail 3d; planting peanuts 4th to 14th; fire-fly 10th; faint white aurora, 24th; ripe cherries 26th. First part of May cold, last part warm; rain on 15 days.

Comorn, Va.—Hail 13th; locust blossoms 18th; ripe strawberries 24th.

Lexington, Va.—Frost 8th, 18th; severe hail 28th.

Snowville, Va.—Frost 3d, 7th, 9th; waters very high 14th.

Wytheville, Va.—Snow flakes 2d; lilacs 3d; frost 4th, 8th, 20th, 21st, and ice 23d; hail, rain 15th; locust blossoms 29th.

Cabell Court House, W. Va.—Season three weeks later than usual.

Trinity College, N. C.—Frosts doing some injury, 3d, 23d.

Albemarle, N. C.—White frosts 7th, 8th, 20th; ripe strawberries 8th; rain needed 31st.

Statesville, N. C.—Frosts 3d, 4th, 8th, 9th, 20th, 23d; thunder southwest 28th.

Atlanta, Ga.—Slight earthquake, 7.45 p. m. 21st; lasted 4 or 5 seconds.

Opelika, Fla.—Ripe Chickasaw plums 8th, dewberries 9th, blackberries 31st.

Jacksonville, Fla.—May mean temperature 73.35°, usually 76.59°. May rain fall 0.81 inches, usually 3.32 inches. The driest May known, and coldest since 1857. All crops are suffering.

Lavacca, Texas.—Dewberries ripe early in May; garden vegetables plenty since middle of month.

Brookhaven, Miss.—Blackberries, plums, cherries, and mulberries ripening 30th.

Memphis, Tenn.—Green peas 3d; cucumbers 9th; strawberries plenty 19th; fire-flies 26th. Spring mean temperature, 1868, 61.92°; of 1869, 58.05°; spring rain fall, 1868, 15.58 inches; of 1869, 16.90 inches.

Pine Grove, Ky.—Snow 2d; frost 3d, 17th, 20th. Corn planting (and replanting) late; ground baked and weeds thrifty.

Clinton, Ky.—Fire-flies 16th.

Steubenville, O.—Frosts 3d, 24th. Eight thunder-storms in May.

Gilmore, O.—Aurora 13th; hail 15th; frost 22d; hail north of this as large as hen eggs on 28th.

Wooster, O.—Aurora 13th; two hail-storms 16th; severe thunder-storm 30th.

Smithville, O.—Much hail with rain 13th.

Kelley's Island, O.—Peach blossoms 10th; cherry 11th; apple 24th.

Sandusky, O.—Peach and cherry blossoms 4th; apple 11th; chimney swallows 4th; frost 8th; four thunder-showers 26th.

North Fairfield, O.—Terrible and damaging hail-storm 26th.

Westerville, O.—Frosts 3d, 8th, 20th, 23d; thunder and hail-storm 15th. Spots on the sun varying almost daily.

Marion, O.—Heavy frost 3d; hail-storm 16th; rainy 26th to 31st. Corn planting delayed.

Bowling Green, O.—Peach and cherry blossoms 6th; apples 12th; light frosts 18th, 20th.

Kenton, O.—Thunder-storms 26th, 29th, in each rain in torrents; rain all day 30th.

Urbana, O.—Cherry blossoms 2d; pear 4th; auroras 7th, 8th; hail 16th; frosts 17th, 20th.

Litchfield, Mich.—Dim auroras 9th, 10th; heavy frost 20th.

Northport, Mich.—Cherry blossoms 24th, peach 27th. Cool month, but no damaging frosts.

Copper Falls, Mich.—Robins 7th; last snow seen 29th. Month cool and dry; vegetation late and slow.

Penn Mine, Mich.—Roads impassable; snow deep but melting 4th; vegetation backward, but advancing fast 31st.

Veray, Ind.—Grapes blossom 12th; insects very numerous, especially on peach, 13th; apples dropping fast 17th; fire-fly 18th; terrific thunder-storm, tornado, hail, 27th; another of greater terror 28th. Seven severe thunder-storms in May.

Spiceland, Ind.—Thunder-shower with hail 5th; saw spots on sun, 157 on 7th; 175 on 8th; 200 on 10th; 22 on 19th; telescope 6 feet, power 200; a little frost 17th.

Columbia City, Ind.—Frosts 18th, 19th, 20th; no damage.

Jalapa, Ind.—Mississinewa river higher than in 20 years.

Knightstown, Ind.—Cherry blossoms 2d, apple 8th; frost 3d, 8th; wheat heading 30th.

La Fayette, Ind.—Heavy frost, ice 3d; hail-storms 4th, 30th, the last doing much damage; streams overflowing thousands of acres and drowning out the crops.

Kentland, Ind.—Very wet month; corn planting hindered.

King's Mills, Ill.—Light frost 7th, 8th; plum blossoms 9th; cherry 13th.

Louisville, Ill.—Frost 1st, 2d, 6th; bobolink 16th; corn planted 19th to 31st; wheat in full head 31st.

Ottawa, Ill.—Frost 7th; severe thunder-storms 26th to 30th.

Belvidere, Ill.—Frost 8th, (since first frost, September 16, 234 days.)

Winnebago, Ill.—Aurora 8th; May cherry blossoms 12th, morella 15th, apple 20th. Month mean temperature 4° below the May average of 12 years.

Wyanet, Ill.—Plum blossoms 1st, early cherry 4th. Last week heavy thunder-storms, flooding many corn fields.

Tiskilwa, Ill.—Slight frost 7th.

Elmira, Ill.—Oriole, 3d; bobolink 9th; catbird 10th; hail 26th, and thunder storms and rains to 31st.

Loami, Ill.—May 31st, wet, warm; corn not all planted yet.

Dubois, Ill.—Bobolink 6th; white-breasted swallow 14th; great thunder-storm 27th. Month 6.4° warmer than for four years.

Galesburg, Ill.—Most of May cold and wet; vegetation late.

Manitowoc, Wis.—Auroras 7th, 9th; thunder-storms 14th, 15th, 25th.

Plymouth, Wis.—Woods green 31st, corn not all planted yet.

Hingham, Wis.—Wheat sowing 1st to 7th, oats 7th to 8th.

Milwaukee, Wis.—Light frost 19th; storm with hail 26th; storms to 31st.

Embarrass, Wis.—Faint aurora 3d, cliff swallow 8th, purple martin 19th, humming bird 30th.

New Lisbon, Wis.—Continuous rain 25th, 26th, 27th; more water on the ground than seen for years.

Bayfield, Wis.—First thunder-storm 4th, first boat from Detroit 10th.

St. Paul, Minn.—May cool, cloudy, backward; good for wheat.

New Ulm, Minn.—Auroras, a fair light, 4th, 7th.

Madelia, Minn.—Last frost 7th; only thunder in month 9th; fruit trees in full bloom 15th; forest full leaf 23d; fog and rain 25th to 30th. Month cool and cloudy.

Clinton, Iowa.—White frost 19th; thermometer fell from 84° to 52° 26th; thunder-storm with hail 27th. Month rather cool.

Waukon, Iowa.—Low thunder, incessant lightning, rain, large hail, 4th; faint aurora 7th, frost on low lands 18th.

Dubuque, Iowa.—Violent wind-storm 4th; cherry blossoms 9th.

Monticello, Iowa.—Corn planting finished 15th; no May frost.

Fort Madison, Iowa.—Apple and cherry blossoms 4th; strawberry 5th; fire-fly 27th.

Guttenberg, Iowa.—Violent hurricane, thunder, lightning, and some rain, 4th; white frosts 18th, 19th.

Algona, Iowa.—Furious thunder-storm from east, rain in torrents 26th, 27th, 28th.

Woodbine, Iowa.—Light frost 22d; rain-storms 20th to 29th.

Hematite, Mo.—Humming-birds 5th; frost and ice 8th; fire-flies 12th, cut-worms, bad, 10th to 31st.

Keytesville, Mo.—Hail, some one inch diameter, 24th.

Hermitage, Mo.—Four thunder-showers p. m. 27th; almost continuous hard thunder, with lightning and rain p. m. 29th; 4.31 inches rain in 50 hours, between 26th and 29th.

Harrisonville, Mo.—Frost in low places 17th; heavy gale, thunder, rain, hail, (pieces of ice, some half an ounce 27th.)

St. Joseph, Mo.—In one and one-half hour four inches rain 26th; the river rose three and one-half feet, and bridges, &c., were swept away.

Oregon, Mo.—Aurora 13th; light frosts 17th, 19th, 22d; great storm 26th, destroyed crops, fences, trees, and overflowed lands never known to be submerged; hail 29th, some one and one-half inch diameter.

Atchison, Kansas.—Wind and rain storms, 24th, 26th, much damage.

Olatha, Kansas.—Young grasshoppers killed by cold and wet season.

Paola, Kansas.—Five frosts, little damage; crops need rain 10th to 20th.

Lawrence, Kansas.—Roses 9th; light frost 17th; six thunder-storms.

Neosho Falls, Kansas.—Month cold.

Manhattan, Kansas.—Winter wheat heading 12th.

Dakota, Neb.—Frost 22d; showery 19th to 27th.

Elkhorn, Neb.—Month 2.5° colder than for 10 years.

De Soto, Neb.—Lilac blossoms 14th; May roses, snow balls 27th.

Fontanelle, Neb.—Last frost 16th, damaged tomatoes; dry till 24th.

Glendale, Neb.—Apple blossoms 5th; hail, sleet, rain, 12th.

Nebraska City.—Frost 17th; grasshoppers dying 31st.

Monterey, Cal.—May 30th, two slight earthquakes last night.

Watsonville, Cal.—Slight earthquake a. m. 20th, three to five seconds; no damage.

